bonze blayk 2019.03.15
08:00:06 -04'00'

"Psychosis, although at times subtle, was pervasive across psychological tests and testing situations. When stressors are minimal this patient may withdraw into his dream world putting his resentments aside and attempting to convey an air of well-being. If these efforts give way under the slightest pressure, regulating his angry dismay, stirring up his dejection and his feelings of being misunderstood and mistreated, leading him to act out momentarily and then to retreat again into fantasy or despondency. Data are significant for recurrent periods of more psychotic functioning."

– Jane DeSmith PhD, Rochester Regional Forensic Unit –
As quoted on page 17 of the report of Igor Kashtan MD dated 2003-09-11.

Fancy, that! "Got bugs?" †

- **AnneRose Blayk** f/k/a "Kevin Eric Saunders a/k/a bonze blayk" - **COMETMONGER**

† - **"DEAR SIR OR MADAM… THAT IS NOT A BUG: IT IS A *CREATURE FEATURE!*"**

Here follow the "Release Notes" of a complex delusional system elaborated by one "bonze blayk" in the form of a 'computer program' as part of his, her, or its dream world; note the extraordinary circumstantiality therein and fixation on minor issues, which he, she, or it has previously expressed in the statement "God is in the details," and bizarre obsession with "Bug fixes," indicating a need for treatment oriented towards addressing formication induced by unremitting abuse of Substance-D. -
The Penultimate Psychiatrist

Authored by AnneRose Blayk f/k/a "Kevin Eric Saunders a/k/a bonze blayk"
- Last updated August 7, 2012 -

TABLE OF CONTENTS

About dataComet

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dataComet-Secure will function as a demo for 30 days.

<USER_REGISTRATION_DATA>

See <http://www.databeast.com/order.html> for information on purchasing dataComet-Secure.

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dataComet-Secure is an AppleScriptable Macintosh OS X Telnet/SSH SOCKS application featuring PC-ANSI, VT220, & TN3270 terminal emulation, SCP, ZMODEM, and IND$FILE file transfer, multiple sessions, flexible and easy-to-use key remapping, edit windows, macro recording, and web browser support.

Emulations supported include:

* 16-color PC-ANSI and SCO-ANSI;
* DEC VT52 (Heath-19), VT100, VT102, and VT220;
* IBM Models 3278 and 3279 Color with extended attributes.

Documentation on dataComet is available on-line in the "Help" menu. dataComet's on-line documentation makes detailed help available instantaneously:

"Control-Click" on a menu, dialog item, or control to bring up the dataComet documentation describing the item;

"Control-Command-Key" brings up the documentation for the menu command which the key triggers!

Users can download a demo copy of dataComet-Secure from <http://www.databeast.com/download.html>. dataComet-Secure incorporates strong encryption algorithms, and it may not be redistributed without a license.

Please note that all use of dataComet-Secure requires that you accept the following license provisions:

---

dataComet-Secure License Provisions for Export Control:

Beta versions of dataComet-Secure may not be exported from the United States.

I understand that dataComet-Secure is subject to U.S. export controls on products incorporating strong encryption, and that I am not allowed to redistribute dataComet-Secure without a license. Redistribution of this software to unlicensed parties is forbidden, and may constitute a Federal felony.

I understand that the requested software, dataComet-Secure, is subject to export controls under the Export Administration Act and that this software may only be transmitted, exported, or re-exported under the laws, restrictions and regulations of the U.S. Bureau of Industry and Security (BIS) or foreign agencies or authorities.

I affirm that I will comply with the restrictions above, and further affirm that I am not an agent for any entity subject to any legal restrictions on the export or use of encryption items from the U.S. In particular, I am not a national of Cuba, Iran, North Korea, Sudan, or Syria, nor am I listed by the BIS as a specially designated national or denied person.

Contacting databeast, Inc.

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databeast, Inc.
1668 Trumansburg Rd.
Ithaca, NY 14850-9213

Reporting bugs

Please use the Bug Report form below to send your bug reports to:
<mailto:datacomet.support@databeast.com>

dataComet-Secure Bug Report:

```
     Mac model:
 System Version:
  Connection(s): (Telnet, SSL Telnet, SSH1/2, Shell, Serial)
Bug description: Using dataComet-Secure 10.2.1r2 we observed...
```

(If possible, please provide enough detail to reproduce the bug, and include any dataComet crash log(s) found using the "Console" application. This application is usually located in the "/Applications/Utilities/" folder, and should launch if you Command-Click this URL: <file:///Applications/Utilities/Console.app>. The crash log is found under this Console "File" menu path: "Open Quickly" -> "Files" -> "~/Library/Logs" -> "CrashReporter" -> "dataComet-Secure.crash.log".)

Credits

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dataComet is derived from Comet, "The Cornell Macintosh Terminal Emulator," which was originally developed by Kevin Eric Saunders (a/k/a bonze blayk!), with contributions by John Lynn and Peter Hoyt, for Cornell Information Technologies under the general direction of Dick Cogger, Mark Oros, and Karen Fromkes (successively).

Thanks are due to Simon Tatham for the PuTTY SSH source code and Tatu Ylonen for inventing and sharing the original implementation of SSH; to Doug Hornig for the basic TextEdit code; to Per Lindbergh for vttest; and to Erny Tontlinger for the excellent Terminal 2.2 code. My thanks go out likewise to MIT, Cornell, Brown, the University of Texas at Austin, NCSA, the National Science Foundation, and the American taxpayer for Kerberos and DES.

My sincerest thanks also to the loyal Comet beta testers at Cornell; there are too many to list, but special thanks are due to Steve Worona, Bill Garrison, Karen Fromkes, Sanjay Hiranandani, Gail Honness, and Larry Chace ("May the sPam be with you!").

Happy Comet Trails!

bonze Anne Rose Blayk, President
(F/K/A "Kevin Eric Saunders a/k/a bonze blayk")
<mailto:bonze@databeast.com>

"Felicity is everywhere...
yet she's not a thing to be lightly grasped;
For here you'd hold, not the name of a rose,
but a fragile-thorny flower-asp..."

-- bonze blayk

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dataComet Copyright Notices:

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0. Overview of dataComet and dataComet-Secure

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dataComet, "The Telnet Client Productivity Tool"

This document has information on (select and use "Find..." to go to the section):

Using dataComet and dataComet-Secure

FAQ and Problem Solving

For help with Frequently Asked Questions and problem solving, see the Help document "A0. Problem Solving".

Shortcuts

See the Help document "0.1. Shortcuts" for information on basic keymapping and the numerous mouse click and command key shortcuts available in dataComet and tips for using them. Also listed are a number of menu command variations available when holding down the Shift- and/or Option- keys when the command is selected. You may want to print out "0.1. Shortcuts" to use as a reference; if you want to know what function a key command will perform, you can use "Control-Command-Key" to automatically find any documentation on the Command-key combination.

dataComet Feature Summary

dataComet emulator window configurations and text window contents are saved as individual documents which can be launched directly from the Finder. Modeless dialogs make it easy to tailor session configurations for different hosts. dataComet supports AppleEvents. Command-clicking URLs in dataComet windows launches helpers to open files and web pages.

Emulators: dataComet offers multiple VT220, PC-ANSI, and IBM 3279 color terminal emulator windows with searchable scrollback buffers. dataComet automatically draws variable-width fonts as mono-spaced fonts; users can set

the character height and width of all fonts for maximum legibility. Sessions can be configured so they are automatically logged to a file.

Text Editing: dataComet also offers text editing windows whose contents can be sent to a host by making a selection and pressing the Enter key (or Command-Return to break a line and send it to a host, easing use of host-based Chat programs). Users can use keyed commands to search, move the cursor by characters, words, or lines, and reformat text by adding or removing line breaks.

Macros: dataComet includes powerful macro commands which can be invoked through keystrokes, mouse clicks, configurable on-screen buttons, and menu items. Macros can also be set to execute on host session open and close. Macros can be recorded automatically as the user interacts with the host to ease macro creation. An AppleScript interface allows other applications to open dataComet documents, execute dataComet macros, and monitor session status.

Interfaces: dataComet supports VT220, PC-ANSI, SCO-ANSI, and IBM 3279 TN3270 terminal emulations. dataComet offers connections through Telnet, Shell sessions, and serial ports or modem devices. Network firewalls can be traversed using a SOCKS V4 proxy. (Note that serial access is supported only for the ASCII emulators--serial dialup access to IBM mainframe hosts requires the use of an IBM 7171 or similar VT100 <-> 3279 channel translator at the host end.)

File Transfer: dataComet offers SCP file transfers over Telnet connections, and ZMODEM transfers over both serial and Telnet connections. The standard IND$FILE file transfer protocol is supported for TN3270 connections to IBM mainframes. Downloads using these protocols can all perform automatic file opening using Internet Config File Mappings.

Public Access Terminals: dataComet also supports special configurations for computers intended to be used as public-access terminals, which require enhanced security; a launch macro can be configured to disable commands which are inappropriate for your application.

dataComet supports user-configurable international character translation for the Macintosh character set, with character translation tables provided for ISO-Latin-1, DEC Multinational, PC-ANSI, IBM ALA, and IBM 3270.

dataComet is fully internationalizable through customization of the on-line documentation and the 'MENU' and 'STR#' resources incorporated in the program.

dataComet-Secure Feature Summary

dataComet-Secure adds support for SSL/TLS Telnet, Kerberos 5 Telnet, the SSH1 and SSH2 Secure Shell terminal protocols, and the SCP "Secure Copy" file transfer protocol to standard dataComet for secure access to ASCII hosts. (TCP and X-Window tunnelling are NOT supported.) All features of dataComet, including ZModem file transfers, work with SSH and SSL/TLS connections. SSH features currently supported include automatic SSH protocol selection, client authentication using user passwords (and under SSH1, using RSA public keys), encryption using Triple-DES or Blowfish, and data compression using zlib. Host public keys are maintained in files using the standard "known hosts" format (e.g., a "NiftyTelnet SSH Known Hosts" document can be copied directly to dataComet's "Security" folder and used as-is). More information on SSH configuration is available in the Help document "3. Dialogs".

Passwords can be stored in session documents in encrypted form to speed logins while maintaining security. You can use one secret Master Passphrase to unlock all your session passwords. In addition, you can use the "Lock" command to prevent use of dataComet until a master passphrase is entered, so that you can leave sessions open on your unattended computer without seriously compromising security. The password encryption is performed using strong encryption (Triple-DES, 168 bits).

dataComet System requirements

MacOS 10.3.9 or later is required; dataComet and dataComet-Secure are Universal Binaries compatible with both PowerPC and Intel-based Macintoshes and releases of MacOS up to 10.6 (Snow Leopard).

dataComet session documents

dataComet uses dataComet documents to retain session configuration information between launches. If you create macros after launching from a document or saving a configuration, they are automatically saved in the document. The "Comet Default" document is a special document which is automatically created in the "{User}/Library/Preferences/dataComet Preferences/" directory under your username "{User}". This document contains

session configuration data which is used as a default when you use the File menu "New..." command to make a new document, and also contains global configuration data which applies to all sessions. To make it easy to access, the "Comet Default" document appears first in the list of documents in the "File" menu "Sessions" submenu.

If you create a new document by choosing "Reconfigure Session" and changing the name, the new document will have the same settings, macros, and other attributes as the source document.

Note that some of the more exotic configuration options in dataComet are available only as macro commands, e.g., disabling mouse-click cursor positioning on a per-session basis. Including these macro commands in a Connection macro will allow you to configure a session so it executes them automatically when the session is opened.

Editing text documents

You can open text windows with no associated session by holding down the Shift key when using the File menu "New..." or "Open..." commands or by dropping the documents onto the dataComet application. Edit windows are TextEdit windows, and can hold up to 32K of text.

Each host session has a ".edit" window in addition to the window containing the emulator screen. The session name is used as the first part of the window name, with ".edit" added as a suffix. This window is provided for use as a handy text scratchpad to save text and commands used with a connection; the ".edit" window's contents are loaded automatically when the session document is opened.

You can send a text selection or the current line to the next frontmost emulator session by pressing Enter or Command-Return. You can execute macros in edit windows by pressing Shift-Enter or Shift-Command-Return, which causes either the selection or the current line (if no selection has been made) to be executed. See "2. Menus" ("Using the Edit menu") for more information on the .edit window.

When documents are saved, the document's creator ID is changed to dataComet's ID only if the Option key is held down; otherwise the document's default type and application will be left unchanged.

dataComet Help

The Apple Help menu allows you to open dataComet documentation. Documents placed in the Help folder contained in the dataComet application bundle will be included in the list, so you can place your own text documents in the folder for convenient access.

HELP! When the documentation is left in the folder as distributed, you can use a shortcut to quickly get help on command keys and menu and dialog items:

Control-"Click" on a menu, dialog item, or control brings up the dataComet documentation describing the item.

Control-Command-"Key" also brings up the documentation for the menu command which the key triggers.

The Documents folder

The "Documents" submenu in the File Menu allows you to open documents placed in the "Documents" folder (located in your "Documents" folder in the folder "dataComet/Documents"). Documents placed in the Documents folder will be included in the list, so you can place frequently-used text documents in the folder for convenient access.

The Sessions folder

The "Sessions" submenu in the File Menu allows you to open dataComet session documents placed in the "Sessions" folder (located in your "Documents" folder in the folder "dataComet/Sessions"; session documents can also be placed in the dataComet application bundle "Contents/Resources/Sessions" folder). By default, new session documents are saved in the Sessions folder. Documents placed in the Sessions folder will be included in the list, so you can place frequently-used session documents in the folder for convenient access.

dataComet emulators

dataComet allows you to connect to the two major types of host computer using either a TCP/IP network or serial/modem lines to make the physical connection; dataComet requires Apple's MacTCP TCP/IP driver to make Telnet TCP/IP connections. Using dataComet, you can connect to either an IBM mainframe running an operating system such as VM/CMS or MVS, which uses the EBCDIC character set, or other hosts such as those running an operating system such as UNIX or VMS, which use the ASCII character set.

See the Document "1. Emulators" for more information on the emulators included in dataComet.

"Foreign" character translation and font support

dataComet supports character translation tables; see "Translation" in "2. Menus and dialogs". These translation tables use the same format as NCSA Telnet's translation tables. To add different tables to dataComet you can place the document containing the 'taBL' resources in the dataComet application bundle "Contents/Resources/User" Folder before launching dataComet; the new translation tables will be added to those in the Translation menu list. Translation tables are automatically selected when you select a Comet-Font; for other fonts the default character translation is Macintosh <-> ISO-Latin-1 for emulator windows.

You can use "Shift-Paste" to translate from a Macintosh font to the target window's font when Pasting. Other translation features include using the "Translation" command to translate edit window text from the Macintosh character set and back... see "0.1 Shortcuts" and "2. Menus" for more details.

dataComet sessions can use fonts other than the default font (which is Comet Mona, a Macintosh font, for both ASCII and 3270 connections). Proportional fonts are drawn as if they were fixed width fonts so that any font can be used with the emulators. If characters in alternate fonts do not appear as they should in ASCII sessions, check to make sure that 8-bit characters are enabled in your session (for example, PINE must be configured to use ISO-8859-1 as its character set in order to use extended character sets).

Macros (command scripts)

dataComet offers macros which allow the user to create scripts to execute routine operations automatically. These can be stored as text in an edit window, or associated with a keystroke or other program states... see the document "4. Macros" for more information.

AppleScript and dataComet

dataComet offers an AppleScript interface which allows the user to control dataComet by sending plain text, executing macros, testing connection status, and performing Copy and Paste operations. See the document "5. AppleScript" for more information.

Scrollback buffering

dataComet supports scrollback buffers for both 3270 and ASCII emulations which preserve screen character attributes (e.g., inverted or boldface text). The Edit menu "Clear buffer" command clears the text from the buffer. The Edit menu "Find" and "Find again" commands allow you to search the buffer, and the File menu "Print" command prints either the selection range or the current screen (if no selection has been made).

By default dataComet scrollback records an unlimited amount of text; you may want to set the scrollback buffer size in the dataComet Preferences "Session" dialog. Each line scrolled takes three times as much space to store as the length of the line, so 100 lines of an 80-column session takes 24K of memory.

File Transfer (SCP, ZMODEM, IND$FILE, TFTP)

dataComet supports different techniques for transferring files: SCP, ZMODEM, IND$FILE, and session logging.

SCP (Secure CoPy) is a file transfer method used for transferring files on SSH connections; dataComet's SCP also allows you to use SCP on Telnet connections.

ZMODEM is the standard method for tranferring files over serial connections to a host, and also works well for performing file transfers over Telnet connections. It offers superior reliability over FTP or TFTP tranfers, since it uses an additional CRC checksum to help guarantee that data has not been corrupted during the transfer.

IND$FILE is the standard file transfer protocol for use with TN3270 connections to IBM mainframes.

Session logging, which you enable in the File menu, allows you to save lines from your session in a file as they are cleared or scroll off the top.

For more information, see the document "6. File Transfer".

Launching sessions using Internet Config

Under OS X, you must use Microsoft Internet Explorer to configure Internet Config, since the "System Preferences" dialogs do not allow user control of Internet Config to select your preferred Telnet/TN3270 application or file mappings for file transfers. Internet Explorer's "Preferences..." "Protocol Helpers" and "File Helpers" dialogs allows you to control these mappings. Internet Explorer is no longer supported by MicroSoft, but you can download the last released version of IE from <http://www.pure-mac.com/downloads/internetexplorerdl.html>.

How Internet Config launches work: dataComet supports 'GURL' AppleEvents, which allow other applications to notify dataComet that a Telnet session should be opened. When dataComet receives a 'GURL' AppleEvent, it opens a session to the host and places the URL specification in the session's .edit window. If the session name matches the name of a document that has been saved in the "Sessions" folder, the session document will be opened, so that configuration changes will be retained between sessions (along with notes made for use with the connection in the session's .edit window).

Performance notes

If you notice that your Macintosh is performing sluggishly, check to see whether you've left a web browser page open which is running a script. "Cute" pages running scripts which present spinning globes, etc., can degrade performance dramatically even when run in the background. The only cure is to close the browser window or go to another, less power-hungry browser page.

If you wish to check to verify that an application or web page is gobbling CPU cycles, you can use the Activity Monitor utility provided by Apple, which you can launch by Command-clicking on this link: <file:///Applications/Utilities/Activity Monitor.app>.

Installing dataComet

The Fonts folder and font resources

The fonts dataComet uses for various emulations are included in the "Fonts" folder in the application's home folder. You should drag the font suitcase files into one of the OS X System Font Folders such as the /Library/Fonts directory; this will ensure correct results when displaying graphics characters on-screen, printing, and displaying special characters in the Macro dialogs (which can use the Comet-Chicago font to display buttons in text fields).

Fonts in the current release include:

- Comet Chicago
- Comet ALA (3270 American Library Association character set)
- Comet ALA Bold
- Comet APL (3270 APL character set)
- Comet APL Bold
- Comet DEC-Multinational
- Comet DEC-Multinational Bold
- Comet Latin-1
- Comet Latin-1 Bold
- Comet Mona (mono-spaced Macintosh character set)
- Comet Mona Bold
- Comet PC-ANSI
- Comet PC-ANSI-Bold

The "dataComet keyboard" resource

The Macintosh keyboard layout maps some Option-key combinations into foreign characters. This can cause confusing results when using key macros, so the "dataComet keyboard" keyboard layout is provided to disable remapping of Option-key combinations.

For more information on installing the "dataComet Keyboard" keyboard layout under OS X, see the Help document "A2. dataComet keyboard".

dataComet-Secure "Security" folder

The "Security" folder in dataComet's home folder and the "{User}/Library/Preferences/dataComet Preferences/Security" folder contain documents which dataComet will use for authentication. Documents containing host public keys placed in these folders will be used for verifying the identity of hosts to which you connect; all documents in these folders are scanned at startup time, and lines that appear to contain valid host keys are added to tables in memory for lookups when SSH host connections are being authenticated.

The public key files must be 'TEXT' type documents, and must use either the standard ssh_known_hosts or ssh_known_hosts2 formats. This allows files to be copied directly from standard SSH "known hosts" files on UNIX hosts.

Host keys added by dataComet will be saved in files named "known_hosts.dataComet" (SSH1) and "known_hosts2.dataComet" (SSH2) using the standard format.

Installing Kerberos Support

dataComet-Secure supports Telnet connections authenticated using the Kerberos 5 protocol. This may require that you configure the Kerberos package. Kerberos support is bundled with Mac OS X.

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dataComet documentation. (Rev. 3/16/2010)

Summary of special key-action combinations

The following list summarizes the functions modified by the Option, Shift, and Control keys.

HELP!

Control-"Click" on a menu, dialog item, or control to bring up the dataComet documentation describing the item.

Control-Command-"Key" brings up the documentation for the menu command which the key triggers.

Standard Macintosh commands:

Command-"." cancels macros, printing, and other actions.

Standard Macintosh Keyboard keys:

"Ins", "Delete ->", "Page up", "Page down", "Home", and "End" perform the "normal" Macintosh window function. (To send VT220 keys using these keys, hold down the Shift key, or select the dataComet Preferences Keypad pane item "VT220 named FKeys sent without Shift key down".)

Scroll Wheel actions:

Holding down the "Option" key while wheeling scrolls by pages.

Mouse Click actions:

Clicking on a selection and dragging it will perform a Drag and Drop operation.
Shift-Drag will copy an emulator selection in Table mode.

Option-Drag will omit carriage returns in an emulator selection.

"Go Away Button" closes a window (and session, if any).

"Zoom Button" zooms a window out to maximum size.
Shift-"Zoom Button" zooms a window in to a width of 75 characters rather than out to maximum print width.
Option-"Zoom Button" miniaturizes a window rather than zooming it.

Command-"Title Bar" lets you drag a window without bringing it to the front. If the window is frontmost and you Command-click on the window name, a popup list of the window's folder hierarchy will appear; selecting a folder from this list will open that folder.
Option-"Title Bar" drags a session window and its .edit window together.

Option-"Grow Box" resizes the window and renegotiates the size with host. (Not all Telnet hosts support this option.)

Command-"Click" in a window will select a word and call Internet Config to resolve it as a URL (with "mailto:" as the default if there is no URL class at the beginning).
Command-"Click" on an emulator button brings up a dialog to set the macro for the button.
Command-"Click" on the shaded area of the button bar adds a new macro button. (Buttons with no title are disabled.)
Command-"Menu Macro select" allows you to redefine a menu macro.

Option-"Click" in the emulator window moves the host cursor. (Note that emulator mouse clicks can be customized using Macros).
OR
You can change this behavior using the "Global" Preferences dialog item "Option-click sends cursor motion key sequences"; when this item is turned off, simple clicks move the host cursor, and then...
Option-"Click" in the emulator screen resets the emulator selection without re-positioning the cursor; it also causes the emulator to select whole lines if you drag the mouse.

Control-"Click" in an emulator window performs an IBM 3270 light pen select operation, when possible, and otherwise performs a "word select/copy/Paste" operation which Pastes the word you click on into the emulator at the host cursor position.

Control-"Click" in an edit window sends the selection to the next frontmost emulator window, except for session.edit windows, which always send the selection to the session with which they are associated.

ASCII Keyboard Control Characters and function keys:

Control-"Key" sends an ASCII control character.

Control-Option-"Key" can make meta-characters for EMACS:

Control-Option-"Key" sends an ASCII meta-character.
Control-Shift-Option-"Key" sends an ASCII meta-shift-character.
Control-Shift-"Key" sends a meta-control-character.

Option-"Key" meta-characters:
When the "dataComet Keyboard.rsrc" is installed and selected, and the "VT100" option "Option is meta key" is enabled, you can use more straightforward keys to make meta-characters:

Option-"Key" sends an ASCII meta-character.
Shift-Option-"Key" sends an ASCII meta-shift-character.
Option-Control-"Key" sends a meta-control-character.

VT220 function keys:

The VT220 function key mappings can be changed to alternate mappings using the "Host menus and keymapping" menu in the "New…"/"Reconfigure Session…" and "VT100" Preferences dialogs.

"F1" -> F1, "F2" -> F2, etc.
("Help" is F15, and "Do" is F16.)

"Shift-" adds 12 so "Shift-F1" -> F13, etc.
"Control-" adds 24 so "Control-F1" -> F25
"Control-Shift-F1" -> F36
"Option-" adds 48 to send other function keys:

```
     Find               Option-"F1"  -> "F49"
     Insert Here        Option-"F2"  -> "F50"
     Remove             Option-"F3"  -> "F51"
     Select             Option-"F4"  -> "F52"
     Previous Screen    Option-"F5"  -> "F53"
     Next Screen        Option-"F6"  -> "F54"
     PF1                Option-"F7"  -> "F55"
                            or "clear" (keypad)
     PF2                Option-"F8"  -> "F56"
                            or "=" (keypad)
     PF3                Option-"F9"  -> "F57"
                            or "/" (keypad)
     PF4                Option-"F10" -> "F58"
                            or "*" (keypad)

     Toggle Auto Print  Shift-Option-"F1" -> "F61"
```

Use Shift to send VT220 Function keys on the keyboard:

```
     Find               "home"       + Shift
     Insert Here        "ins"        + Shift
     Remove             "del"        + Shift
     Select             "end"        + Shift
     Previous Screen    "page up"    + Shift
     Next Screen        "page down"  + Shift
```

The FKeys can also be sent with the buttons on the left hand side of the window; press the '?'/'M' button to s see the labels.

IBM Keyboard PF keys:

Control-"Key" or keypad key sends IBM 3270 PF keys (see PF menu);

"Return" -> IBM Enter; Shift-"Return" -> Line Feed;

"F1" -> PF1; Shift adds 12 so Shift-"F1" -> F13, etc.
... see the document on Emulators for more information.

The IBM PF Keys can also be sent with the buttons on the left side of the window; press the '?'/'M' button to see the labels.

Edit window Keyboard -> Host commands:

"Enter (KP)" sends text from the topmost .edit window to a host;
Command-"Return" breaks a line and sends it to a host;

Shift-"Enter (KP)" executes the text as a macro;
Shift-Command-"Return" breaks a line and executes it as a macro;

Note that the Enter key commands listed here are very useful when pasting boilerplate text! Macintosh-native fonts are automatically translated to the host character set selected using the "Translation" menu for the target host window; the target host window is the next topmost connected emulator window.

File Menu commands:

Shift-"New…" opens a new edit window.
Shift-"Open…" opens all documents as text documents.
Option-"New…" opens a Shell session (under OS X only).
Shift-Option-"Terminal Session…" opens a clone of the topmost window.
Option-"Open…" opens a session document without opening the connection.

Option-"Save text as" sets a text document's creator type so it will be opened using dataComet (dataComet's ID is '3278').

Shift-"Save text as" saves the window position and font info so you can save these parameters in non-dataComet documents (these are automatically updated for dataComet documents).

Shift-"Open Log…" selects a file to save VT100 print streams rather than printing them.
Option-"Open Log…" selects a file to log all session data transmissions for debugging purposes.
Shit-Option-"Open Log…" logs session data as it is displayed, rather than scrolled off or cleared, so that extra line feeds are not added to the log (like NCSA Telnet's logging).

Shift-"Print…"/Shift-Print selection…" print without

displaying the Print dialog.

Option-"Quit" quits dataComet without querying the user to close
connections and save documents (no save is performed).

Transfer Menu commands:

Shift-"Upload" can be used to accept a download (by default AutoReceive is enabled, so usually this is not necessary).

Edit Menu commands:

Shift-"Copy" and …
Shift-"Append screen to .edit window" perform a TEXT screen copy (adding a space at the end of each line and a carriage return for each two carriage returns).
Option-"Copy" copies the emulator selection as a Table.

"Paste" automatically translates from Macintosh fonts to other fonts using the Translation selected for the target window if translation of host output is enabled.
Shift-"Paste" forces translation.
Option-"Paste" suppresses translation.

Edit window Paste only:

Option-"Paste" does a search before pasting ("Repeat Paste").
Shift-Option-"Paste" does a "Replace all" operation.

Shift-"Clear buffer" resets the emulator (including automatically backmapping all VT100 graphics characters in the buffer to fix garbage from invalid SO command characters).

Shift-"Select All" selects the current screen rather than the entire scrollback buffer.

Shift-"Find" does a search backwards.
Option-"Find" does a search using the current selection.

Shift-Option-"Go to line…" goes directly to the end of the scroll buffer without presenting the dialog.

Shift-"Record session" records the emulator session

including the host commands received and characters
sent to the host.
Shift-Option-"Record session" records the emulator session
including the Telnet layer interactions.
You can turn off literal session recording by selecting
"Record Session" again with no modifiers.

Edit -> Selection Menu commands:

Shift-"Cursor Key" extends the selection range (edit only).
Option-"Cursor Key" moves by words (left/right)
or sentences (Up/Down).

Shift-"Match Brackets" matches backwards.

Edit window text reformatting commands:

The "¶" button toggles display of paragraphs wrapped/unwrapped
(same as Option-"Add Returns").
The "+¶" button wraps selected text by inserting carriage
returns (same as Shift-"Add Returns").
The "-¶" button unwraps selected text by replacing carriage
returns with spaces (same as "Remove Returns").

"Page up" and "Page down" refer to the Edit menu commands:

Shift-"Page up" shifts text left by deleting tabs.
Option-"Page up" and the "<<" button shift text left.
Shift-Option-"Page up" and the "|<<" button delete ALL
leading spaces and tabs in the selected text.

Shift-"Page down" shifts text right by inserting tabs.
Option-"Page down" and the ">>" button shift text right.
Shift-Option-"Page down" shifts selected text in an edit
by inserting '>' characters.

The "#" button brings up the "Cursor Word Count…"
modeless dialog.

Window Menu commands:

Shift-"Close session" causes a close without macro execution.

Shift-"Window Menu Select" redirects output to the selected
window.

Shift-"Zoom" closes a Session connection.

Option-"Toggle .edit window" switches macro execution for a session-linked .edit window into the edit window, as opposed to executing the macro in the emulator window context.

Shift-"Toggle .edit window" brings up the "Go to Line…" dialog.

Control Menu commands:

When you select a Font, Size, or Leading, only the screen settings are set to the same value by default. You can also set the print settings independently:

```
Option-"Font"    changes the print setting.
Option-"Size"             "
Option-"Leading"          "
```

Shift-"Translation" selects the Translation table so that characters received from the host are NOT translated to the Mac character set, so you can use the Comet-Fonts and use standard Mac Option-key combinations to enter "foreign" characters; this way only characters SENT to the host are translated.

Edit window Translation only:

"Translation" translates the selection in an edit window from the Macintosh character set TO the selected set.
Option-"Translation" translates the selection in an edit window back into the Macintosh character set FROM the selected set.

Macro Menu commands:

Shift-"Record actions for macro" records a session without generating match strings (this is useful for recording 3270 or other page-mode screen macros which have a fixed page layout with changing data).

Shift-"Dump macros into .edit" dumps a character table into the frontmost edit window.

Option-"Dump macros into .edit" dumps a table of the
current CSV macro settings into the a new edit window.

Command-Menu macro item allows you to modify a macro added
to the "Macros" menu using the "Add Menu Macro…" command.

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dataComet documentation. (Rev. 1/27/08)

This document has information on (select and use "Find..." to go to the section):

Using dataComet

This document offers some pointers on using dataComet to get maximum productivity.

dataComet is especially useful in managing sessions with UNIX hosts. These pointers also apply to other hosts, though the commands will differ under operating systems such as digital's VMS and IBM's VM and MVS.

The key to minimizing time and effort using dataComet is using the edit window and macro features. Host commands are sometimes complex and obscure; dataComet allows you to save complicated host commands or shell scripts in an edit window and execute them by selecting them and pressing the "Enter" key, which sends them to the host. (Commands which are one line long can be selected by placing the cursor anywhere on the line containing the command you wish to execute.)

The edit window "Enter" key

As a simple example, take the UNIX command which lists files by modification date:

```
ls -lt
```

After opening a session, you can execute the command above by bringing this window to the front, placing the cursor on the line containing "ls -lt", and pressing the "Enter" key. If you have multiple session windows open, the command will be sent to the frontmost window with an open connection.

The value of saving these commands in an edit window becomes more obvious when you are executing more complex commands. For example, suppose you want to see a list of UNIX files sorted by size. The "ls" command doesn't have an option to sort by file size, so you need to "pipe" the output of the "ls" command into the "sort" command:

```
ls -l | sort +3rn -4
```

Here's another example. Suppose you want to view a list of today's web hits without moving to the directory and using an editor:

```
cat /home/www/logs/databeast.com/19`date +%y%m%d`.accesses
```

(Note this example won't work for you unless you change the directory "/home/www/logs/databeast.com/" to the directory which contains your own web hit logs.)

Chat and Talk interaction ("Command-Return")

The "Command-Return" key is used like the "Enter" key in an edit window, with the simple difference that "Command-Return" adds a line break at the cursor position before sending the line to the host.

This makes it easy to use "chat" and "talk" programs on the host. You can type a line to send in an edit window and then send it to the host with "Command-Return"; if you want to edit the line before sending it, you can change the line, and then send it using either "Enter" or "Command-Return".

Recording macros

You can use the "Macros" menu "Record actions for macro..." command to automatically record interactions with a host and generate a macro. When

you're finished recording, select the "Record end--ready to Paste" command, and then Paste it into and edit window or the macro dialog.

When you have a command working correctly, you can add a macro to execute the command if you use it frequently. To make a key macro, bring up the "Control Macro..." dialog (Command-D) and press the key you wish to remap. You can also add a global menu macro by using the "Macros" "Add Menu Macro..." command, or add a button macro by pressing on the button with the Option key held down. (See the document "4. Macros" for more information on adding macros and the commands available.)

All macro editing uses the same basic dialog, which offers buttons to enter commonly used keys on the VT220 and IBM 3270 keyboard.

Editing and executing macros ("Shift-Enter")

After you've prepared a key macro using dataComet's "Record Actions for Macro..." command, you may want to edit it (especially on ASCII hosts, you will want to replace unnecessary "!D\002" two-second delays inserted by the automatic macro generator with "!D\000" delays (no delay).

These delays are automatically inserted because some ASCII host applications present command prompts before they're ready to receive input, so the greater speed with which a macro executes may wind up sending a command to the application which the application will then drop, resulting in a failed macro.

Only testing can tell whether a delay is adequate for a given host application.

You use an edit window to modify and test macros to be sure they work reliably before placing them in a key, menu, or button by using the "Shift-Enter" key. This key works like the "Enter" key, but tells the emulator window which receives the text to interpret it as a macro.

The "Command-Shift-Return" key functions in the same way, but breaks off the line before sending the text to the emulator window.

Reformatting web page text

Web browsers often copy text with lines broken at odd places, and sometimes present you with pages of offset text which, when copied, yield text which has leading spaces. Copies of these pages need to be reformatted when they are pasted into a Macintosh document.

If you're copying text from a browser page and want to reformat it into a usable form using dataComet, you can do the following: copy the text in the browser, switch to a dataComet edit window, paste the text, strip the leading spaces and tabs, unwrap the text by deleting carriage returns, and edit it.

After you switch to dataComet, you can use key commands for the remaining tasks:

Shift-Command-N	New text window
Command-V	Paste
Command-Z	
Command-Z	Undo twice to select Paste range
Option-Shift-Command-[	Strip all leading spaces and tabs
Shift-Command-/	Unwrap (strip Carriage Returns)

If you use this command sequence frequently, you can execute it with a single keystroke by defining a key macro containing them (remember, it's easy to record different command sequences using "Record actions for macro"):

```
!\001\065!\002\005!\002\001!\002\001!\002\173!\002\082
```

If you're preparing the text to be entered in a host editor, you can then:

Shift-Command-=	Resize window to 75 characters wide
Command-/	Wrap (add Carriage Returns)
Enter	Paste through to the next frontmost session

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1. Emulators

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dataComet documentation. (Rev. 1/27/08)

This document has information on (select and use "Find..." to go to the section):

Using ASCII terminal emulators

Many hosts use the ASCII (American Standard Code for Information Interchange) character set to simplify communication with other computers; for example, a Digital VAX running VMS, almost all UNIX systems, and Macintosh or PC-DOS systems. You can use either VT100, VT102, VT220, Heath-19, or PC-ANSI emulation with these hosts; the VAX requires one of the VT emulators.

The buttons at the top and left side of the window provide a convenient method of sending frequently used commands to the host with the mouse. You can set the buttons to send a macro instead of the default VT100 control sequences by clicking on the button while holding the Command key down.

You can select text on the screen with the mouse to Copy, Paste, Append, or Print.

If the "Views" Preferences panel item "Show cursor-buttons at left of window" is enabled, the cursor is set to button numbers which appear when you move the cursor up and down the left margin of the window. By default, these send key sequences equivalent to the Keypad keys in VT100 Application mode. You can see the labels for the buttons when you click on the '?' control at the top left of the window.

If the "Views" Preferences panel item "Show status bar at top of window" is enabled, there are 11 buttons at the top of the emulator window which perform functions useful with hosts which use ASCII terminals:

Key	Function
CR	Enter a line of text or a command.
LF	Send an ASCII Line Feed character.
ESC	Send an ASCII Escape character.
CTL-S	Stop transmission to your terminal.
CTL-Q	Restart transmission to your terminal.
DEL	Send an ASCII DEL character.
Break	Send a break.
CTL-C	Usually used to abort a command.
CTL-U	Usually used to abort a command.

To the right of the buttons are two counters; the left one shows the packets sent to the network, the right one shows the packets received.

Moving the mouse over a point on the terminal screen and pressing the mouse button while holding down the Option key moves the terminal cursor to the underlined position. (You can also turn off the "Global" Preferences panel option "Option-click sends cursor motion key sequences" if you want to be able to position the cursor without holding down the Option key.)

Please note that if you click again while the cursor is still moving, it will not move to the point you expect it to! If the cursor does not go to the proper position on the first mouse click, try it again; the presence of tabs in the text may cause incorrect positioning. When using the UNIX vi

editor, you can use "vi cursor motion" to get around this problem, in addition to speeding the process up. ("vi cursor motion" does have a minor problem in that it does not handle wrapped lines properly.)

You can modify ASCII key mapping using options in the "VT100" Preferences panel; the default keymapping has:

```
          `   ->  Escape
  Backspace   ->  Delete
```

VT220 key mapping

On the Apple extended keyboard, there are additional function keys available at the top of the keyboard and in between the keyboard and keypad.

The "ins", "home", "end", "x->", "page up", and "page down" keys are mapped by default to perform the expected local Mac-like function (i.e, paging and character deletion). To send VT220 keys, hold down the Shift key while pressing the key. You can use the "Keypad" Preferences panel to switch so that the keys send VT220 keys ordinarily and perform the local functions when shifted.

You can also use the "Keypad" Preferences panel to control whether the keypad keys function as regular numeric keys or as "Application" keys which send special escape sequences; if you have problems using the keypad with an application, try using this panel to switch the setting.

The keys at the top of the keypad are mapped to PF1 - PF4. The keys at the top of the keypad are mapped to F1 - F15 (shift to map F1 -> F13, F2 -> F14, etc., up to F8 -> F20). In VT100 mode the keys send the following sequences:

Key	VT key name	Sends
home	FIND	\027[1~
help	Insert Here	\027[2~
X->	Remove	\027[3~
end	Select	\027[4~
page up	Prev Screen	\027[5~
page down	Next Screen	\027[6~
clear	PF1 (Gold)	\027OP
=	PF2 (Help)	\027OQ
/	PF3	\027OR
*	PF4	\027OS
F1	PF1 (Gold)	\027OP
F2	PF2 (Help)	\027OQ
F3	PF3	\027OR
F4	PF4	\027OS
F5	Print	\027OT
F6	F6	\027[17~
F7	F7	\027[18~
F8	F8	\027[19~
F9	F9	\027[20~
F10	F10	\027[21~
F11	F11	\027[23~
F12	F12	\027[24~
F13	F13	\027[25~
F14	F14	\027[26~
F15	F15 (Help)	\027[28~
^-F1	F13	\027[25~
^-F2	F14	\027[26~
^-F3	F15	\027[28~
^-F4	F16 (Do)	\027[29~
^-F5	F17	\027[31~
^-F6	F18	\027[32~
^-F7	F19	\027[33~
^-F8	F20	\027[34~

NOTE that the host can also set the function keys using UDK escape sequences. You can also select alternate function key mappings using the "Host menus and function keys" item in the "New..." or "Reconfigure Session..." dialog.

Application mode keypad	
+	\027Ol
-	\027Om
.	\027On
0	\027Op
1	\027Oq
2	\027Or
3	\027Os
4	\027Ot
5	\027Ou
6	\027Ov
7	\027Ow
8	\027Ox
9	\027Oy
ENTER	\027OM

* '\027' is the Escape character

UNIX connections

Resizing the terminal window when the host doesn't support Telnet Window Size negotiation: If your host does not have the correct terminal size set after you change the window size, you need to issue the following commands (e.g., where you want to set the size of your window to 50 rows X 80 columns):

```
stty rows 50 columns 80
echo '[2J[r'
```

The second command clears the screen and resets the terminal's scrolling region to the full size of the screen so all the rows specified will be used before scrolling occurs.

To get 8-bit connections: UNIX terminal drivers normally do not pass 8 bit characters. To enable proper handling of ISO-Latin or other character

sets which have more than 128 characters, add the following lines to your .cshrc:

```
tty -s
if ($status == 0) stty cs8 -istrip -parenb
```

If you don't use csh, add equivalent code to your shell's start up file. (Note that it is necessary to check whether your standard I/O streams are connected to a terminal. Only then should you reconfigure the terminal driver.)

Using dataComet with EMACS

---

dataComet offers reliable performance with EMACS editor sessions. "Control-Option" sends a meta-character; "Control-Shift" sends a meta-control-character. You can also use the "VT100" Preferences panel item "Option is Meta Key" to set up the Option key to serve as a Meta Key (see description below). Alternatively, you can set the eight bit of the character to make it a Meta key using the !CM macro, which you need to associate with a key using a key macro.

Using dataComet with PC-ANSI hosts

Note that you should have the "Comet PC-ANSI" font selected; if this is not the case, box characters will appear as odd characters. (This is ordinarily automatic, but may not be set correctly if you reconfigure a session as a PC-ANSI session after connecting as a VT100).

Using the ASCII menu

The "ASCII" menu comes up when you are connected to a host as an ASCII terminal. These show the keyboard mapping for ASCII control keys and key shortcuts. The interpretation of these Control Characters depends on the host and application being used.

ASCII Control characters…

Hex	Name	Control-	The Usual Effect
$00	"NUL"	@ or space	
$01	"SOH"	A	
$02	"STX"	B	
$03	"ETX"	C	Abort process (UNIX)
$04	"End-of-Trans"	D	Terminate input (UNIX)
$05	"ENO"	E	
$06	"ACK"	F	
$07	"Bell"	G	Ring the bell
$08	"Backspace"	H	Move backwards and overwrite
$09	"Tab"	I	Tab to next field
$0A	"Line Feed"	J	Move down one line
$0B	"Vertical Tab"	K	Move to next vertical tab
$0C	"Form Feed"	L	Eject page
$0D	"Return"	M	Move to beginning of line
$0E	"Shift-Out" (SO)	N	Select alternate character set
$0F	"Shift-In" (SI)	O	Restore standard character set
$10	"DLE"	P	
$11	"XON"	Q	Resume transmissions (try Control-Q if there's no echo!)
$12	"DC2"	R	
$13	"XOFF"	S	Suspend transmissions
$14	"DC4"	T	
$15	"NAK"	U	
$16	"SYN"	V	
$17	"ETB"	W	
$18	"CAN"	X	
$19	"EM"	Y	
$1A	"SUB"	Z	Terminate input (DEC VMS) Suspend process (UNIX)
$1B	"Escape"	[	Terminate input (UNIX vi) Cancel input or screen, usually
$1C	"FS"	\	
$1D	"GS"	]	
$1E	"RS"	6	
$1F	"US"	_	
$7F	"Delete"	?, Backspace or Option-Backspace	

Using dataComet with the IBM 7171

Use the Heath-19 emulator and turn on the "Use IBM menus and key mapping" option in the "VT100" Preferences panel if you want to communicate with an IBM mainframe through the 7171 ASCII terminal adapter. This mode allows you to run programs such as the XEDIT full-screen editor as if you were using an IBM 3278 terminal. Buttons and menu items are provided which allow you to conveniently send the commands the 7171 accepts as the equivalent of keys on the 3278 terminal. When the 7171 requests your terminal type, type in "C19". (The C19 definition must be loaded into the 7171 configuration for this to work correctly.)

Using the 3279 emulator (and ASCII IBM key mode)

dataComet provides an emulation of the IBM 3279 color display terminal; it allows you to run programs such as FILELIST or the XEDIT full-screen editor just as if you were using an IBM 3279 terminal. Buttons and menu items are provided which allow the user to conveniently send the commands produced by keys on the 3279 terminal.

Moving the mouse over a point on the terminal screen and pressing the mouse button while holding down the Option key moves the terminal cursor to the mouse cursor's position. (You can also turn off the "Global" Preferences panel option "Option-click sends cursor motion key sequences" if you want to be able to position the cursor without holding down the Option key.)

You can select text on the screen with the mouse to Copy, Paste, Append, or Print.

Key Assignments (see IBM menus also)

Key	3270 Action
Return	Enter
Shift-Return	New Line
Option-Return	PA2
Control-Return	Clear

Enter	Enter
Shift-Tab	Back-Tab
Backspace	Backspace, Delete

The Backspace key changes its behavior when the 3270 emulator is put into "Insert" mode. Ordinarily it performs a Backspace-Space-Backspace, so that the text to the right of the cursor is left in its original position. When Insert mode is ON, the Backspace key will perform a Backspace-Delete, so that the text to the right of the cursor shifts to the left.

You can also use the Command, Shift, and Option keys to control which action you wish the Backspace to perform. When Command is held down while Backspace is pressed, the character to the right of the cursor is deleted, and the remaining text is shifted left. When the Option key is held down, the result is a Backspace-Delete, as is the case in Insert mode. When the Shift key is held down, the standard Backspace-Space-Backspace will be performed.

If the "Views" Preferences panel item "Show cursor-buttons at left of window" is enabled, the cursor is set to button numbers which appear when you move the cursor up and down the left margin of the window. By default, these send the PF keys from 1 through 24. You can see the labels for the buttons when you click on the '?' control at the top left of the window.

If the "Views" Preferences panel item "Show status bar at top of window" is enabled, there are 11 buttons at the top of the emulator window which (by default) perform actions available on 3270-type terminal keys. (See "2. Menus", "Using IBM menus" for a description of their functions.)

To the right of the buttons are two counters; the left one shows the packets sent to the network, the right one shows the packets received.

A "HOST BUSY" indicator appears at the top of the screen when one the host system is busy processing your command; the host will not accept new commands from an Enter or PF key until the "HOST BUSY" indicator goes off.

IMPORTANT NOTE: You can enhance your communications efficiency when using the 3270 emulator by making sure that XEDIT has "SET FULLREAD OFF" in your PROFILE XEDIT file; XEDIT-based applications such as RICEMAIL may need to have this option turned off also to get optimal performance. FULLREAD mode causes an extra 2,000 bytes to be sent with every PF-keystroke in the Action menu.

Using the IBM "IBM" menu

The "IBM" menu contains 3270 Local keys which move the cursor and modify the screen without notifying the host of any changes.

Function	The Usual Effect
"Up"	Moves the cursor.
"Down"	"
"Left"	"
"Right"	"
"Home"	Move the cursor to the top left of the screen or the first input field.
"BS-BLANK/BS-DEL" "Delete" "BS-BLANK" "BS-DEL"	Backspaces and blanks (or deletes if Insert mode is on).
"DEL"	Delete the character at the cursor position.
"Erase EOF"	Erase from cursor to End of Field.
"Erase Input"	Erase all input fields on the screen.
"Field-Tab"	Move to the beginning of the next field.
"Field-Backtab"	Move to the beginning of the previous field.
"Insert"	Go into Insert mode (inserts characters at the cursor as long as there are spaces at the end of the current field).
"Newline"	Move to the beginning of the next line.
"Reset"	Cancel Insert or clear KBD-lock (KBD-lock is displayed on the right side of the screen).
"Cursor Select"	Performs light pen operation.
"DUP"	Enters a DUP character (may vary if not using a Macintosh font)
"Field Mark"	Enters a Field Mark character (ditto)
"Record Separator"	Enters a Record Separator character (ditto)

Using the IBM "3270" menu

This menu contains Program Function (PF), Program Attention (PA), and other keys will send the current screen to the host and signal the host to interpret the screen. The interpretation of these "PF keys" varies depending on the application; "The Usual Effect" listed is the most common use of the key.

Function	The Usual Effect
"Enter"	Enter a line of text or a command.
"PA1"	Programmed Attention-1 (Toggles CP-mode).
"PA2"	Advance screen from "MORE…" or "HOLDING".
"PA3"	Programmed Attention-3 (application-defined).
"Attn"	Interrupts the current process.
"Clear"	Advances screen from "MORE…" and clears the input area.
"SysReq"	
"PF1"	Help
"PF2"	
"PF3"	Quit
"PF4"	
"PF5"	
"PF6"	
"PF7"	Page Back
"PF8"	Page Forward
"PF9"	
"PF10"	
"PF11"	
"PF12"	
"PF13"	
"PF14"	
"PF15"	
"PF16"	
"PF17"	
"PF18"	
"PF19"	
"PF20"	
"PF21"	

```
  "PF22"
  "PF23"
  "PF24"
```

Using the IBM "5250" menu

The "5250" menu sends commands which allow you to use IBM 5250 commands when using the 3270 emulation. Many of the commands are similar to the commands for the 3270 (see above).

5250 Functions

"Help"
"3270 Help"
"5250 Clear"
"Print"
"Attributes"
"Test Req"
"Roll Down"
"Roll Up"
"Field Exit"
"Error Reset"
"5250 SysReq"
"Record BS"

Using the IBM "Set Attributes" menu

The IBM "Set Attributes" menu allows you to select an attribute to be applied to the IBM 3279 screen. If a selection has been made, unprotected characters in the selection range are set to the selected attribute. If no selection is made, the selected attribute will be used for newly-typed characters.

The attributes available in applications which support attribute entry are:

Attribute	
"Default Color"	Use field color set by host
"Red"	
"Green"	
"Yellow"	
"Blue"	
"Pink"	
"Turquoise"	
"White"	
"Default Highlight"	Use field highlight set by host
"Blink"	
"Reverse"	
"Underscore"	
"APL Font"	Enter characters from the APL alternate font

Note that to use the APL font, you need to enter "SET APL ON" on the host. Note that the APL font is mapped differently from the "standard" IBM APL keyboard.

1.1 VT100 Command Set

Digital, ANSI-X3.64, ISO-6429, ECMA-48, PC-ANSI and SCO-ANSI commands

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This document has information on (select and use "Find..." to go to the section):

ANSI Compatible Mode

Note that the '!C>command\000' macro allows you to set any of the modes listed below in a key macro.

"\nnn" -> a decimal number representing a character, e.g., "\027" -> <ESCAPE>. This encoding allows you to use the strings listed below directly in dataComet macros.

Unless otherwise noted, all command sequences listed are supported by dataComet.

Modes

	To Set		To Reset	
Mode Name	Mode	Sequence	Mode	Sequence
ANSI/VT52 mode	ANSI	\027<	VT52	\027[?2l
Autowrap	On	\027[?7h	Off	\027[?7l
Column mode	132 Col	\027[?3h	80 Col	\027[?3l
Cursor invisible	Invisible	\027[?25h	Visible	\027[?25l
Erasure mode	Erase all	\027[6h	Protected	\0276l
Insert mode	Insert	\027[4h	Overwrite	\027[4l
Line feed/new line	New line	\027[20h	Line feed	\027[20l
Nat'l character set	ASCII	\027[?42h	Local Nat'l	\027[?42l
Origin mode	Relative	\027[?6h	Absolute	\027[?6l
Print form feed	Add FF	\027[?18h	No FF added	\027[?18l
Print extent	Whole page	\027[?19h	Scroll rgn.	\027[?19l
Send/Receive mode	Local echo	\027[12h	Remote echo	\027[12l
Scrolling mode	Smooth	\027[?4h	Jump	\027[?4l
Screen mode	Reverse	\027[?5h	Normal	\027[?5l
Backarrow key	Backspace	\027[?67h	Delete	\027[?67l
Control Transmission	7-bit	\027 F	8-bit	\027 G
Cursor key mode	Application	\027[?1h	Cursor	\027[?l
Key auto repeat	On	\027[?8h	Off	\027[?8l
Keyboard action	Locked	\027[2h	Unlocked	\027[2l
Keypad mode	Application	\027=	Numeric	\027>

Programmable LEDs

\027[Ps;Ps;...Psq

Ps = 0 or None All LEDs Off
1 L1 on
2 L2 on
3 L3 on
4 L4 on

Any other parameter values are ignored.

Programmable UDKs (User Defined Keys)

\027PPc;Pl|Key1/Str1;...,KeyN/StrN\156

\027PPc;Pl;Pt;Pm|Key1/Name1?Str1;...,KeyN/NameN?StrN\156
(dataComet Button Bar UDK, optional)

Pc is the clear parameter

0 Clear all keys
1 Clear only keys with new settings

Pl is the lock parameter (used to select target)

0 FKeys and Button Bar
1 FKeys only
2 Button Bar only
3 Execute a URL string
4 Execute a dataComet macro

dataComet always Locks the FKeys and Buttons; this
parameter is used to specify which items are affected.

Pt is the type parameter (dataComet Button UDK, optional)

0 "Classic" mapping (default if not specified)
1 dataComet mapping

Pm is the macro parameter (dataComet Button UDK, optional)

0 StrN is plain text (default if not specified)
1 StrN should be interpreted as a dataComet macro

"KeyN" is a string indicating which PFkey/Button is to be remapped.

"StrN" is a string parameter with the string to send when the PFkey or button is pressed.

The command must always be terminated with the String Terminator sequence, either the ST character (\156) or "\027\" (ESC-\).

---

dataComet mapping

"KeyN" "1" = F1, "2" = F2, etc.;
KeyN from "1" - "24" apply to the controls in the Button Bar.
KeyN from from "101" - "164" apply to the labels and buttons on the left hand side of the emulator screen ("101" = 1).

"NameN" is a string parameter with the button name, terminated by a '?'. This parameter is required to set a host-defined button in the button bar which is displayed at the top of the dataComet emulator window.

dataComet mapping uses plain ASCII for the string parameters, so the button name and macro are easier to create and maintain.

Here's an example which works with UNIX, setting F1 (and the first button) to execute a macro with a delay, and F2 to send "ls -lt":

```
cat << 'EOT'
[1;0;1;1|1/Wham?echo !D\003WHAMMO\010;2/lt?ls -lt\010\
'EOT'
```

Here's an example which executes the macros immediately:

```
cat << 'EOT'
[1;4;1;1|1/Wham?echo !D\003WHAMMO\010;2/lt?ls -lt\010\
'EOT'
```

Here's an example which opens a URL (note the "/?" separators
are still included even though no Fkey number or title
is used in this example):

```
cat << 'EOT'
[1;3;1;1|/?<http://www.datacomet.com>\
'EOT'
```

"Classic" mapping

KeyN is one of the following

F1	1	
F2	2	
etc.	...	
F16	16	(dataComet extension)
F6	17	(Standard)
F7	18	
F8	19	
F9	20	
F10	21	
F11	23	
F12	24	
F13	25	
F14	26	
F15	28	
F16	29	
F17	31	
F18	32	
F19	33	
F20	34	

StrN is a "Classic" UDK string,
encoded in hexadecimal
(i.e., 'N' = 4E)

Cursor Movement Commands

Cursor up	\027[PnA
Cursor down	\027[PnB
Cursor forward (right)	\027[PnC
Cursor backward (left)	\027[PnD
Direct cursor addressing	\027[Pl;PcH or \027[Pl;Pcf
Index	\027D
Next Line	\027E
Reverse index	\027M
Save cursor and attributes	\0277
Restore cursor and attributes	\0278
DECBI Back Index Char	\0276
DECFI Forward Index Char	\0279

SCO-ANSI sequences from ANSI X3.64

Cursor Back Tab (CBT)	\027[PnZ
Cursor Next Line (CNL)	\027[PnE
Cursor Previous Line (CPL)	\027[PnF
Horizontal Position Absolute (CHA) (HPA)	\027[PnG or \027[Pn' or \027[Pn`
Horizontal Position Relative (HPR)	\027[Pna
Vertical Position Absolute (VPA)	\027[Pnd
Vertical Position Relative (VPR)	\027[Pne
Scroll Up (SU)	\027[PnS
Scroll Down (SD)	\027[PnT

Additional ISO-6429 (ECMA-48)sequences

Cursor-Horizontal-Tab (CHT)	\027[PnI
Scroll Left (SL)	\027[Pn @ (space-@)
Scroll Right (SR)	\027[Pn A (space-A)

* Pn = decimal parameter in string of ASCII digits (default 1)
* Pl = line number (default 0); Pc = column number (default 0)

```
------------------------------------------------------------------------

      Screen Editing (Erase/Insert/Delete)

------------------------------------------------------------------------

   Erase from cursor to end of screen   \027[J  or \027[0J
   From beginning of screen to cursor   \027[1J
   Entire screen                        \027[2J
   From cursor to end of line           \027[K  or \027[0K
   From beginning of line to cursor     \027[1K
   Entire line containing cursor        \027[2K
   Erase Characters (ECH ECMA-48)       \027[PnX

   Insert line                          \027[PnL
   Delete line                          \027[PnM

   Insert characters                    \027[Pn@
   Delete characters                    \027[PnP

   Repeat last char (REP ECMA-48)       \027[Pnb

------------------------------------------------------------------------

      Line Size Commands (Double-Height and Double-Width)

------------------------------------------------------------------------

   Change this line to double-height top half       \027#3
   Change this line to double-height bottom half    \027#4
   Change this line to single-width single-height   \027#5
   Change this line to double-width single-height   \027#6

------------------------------------------------------------------------

      Character Attributes

------------------------------------------------------------------------

   \027[Ps;Ps;Ps;...,Psm

   Ps =   0 or None   All Attributes Off
               1      Bold on
               3      Italic on (shown as bold)
               4      Underscore on
               5      Blink on
               7      Reverse video on
               8      Invisible on
              10      Normal font
```

11	Alternate font
12	Alternate font shifted +128
22	Bold off
23	Italic off
24	Underscore off
25	Blink off
27	Reverse off
28	Invisible off

Colors:	Foreground	Background
Black	30	40
Red	31	41
Green	32	42
Yellow	33	43
Blue	34	44
Magenta	35	45
Cyan	36	46
White	37	47

Variant:	Foreground	Background
Black	<0	=0
Red	<1	=1
Green	<2	=2
Yellow	<3	=3
Blue	<4	=4
Magenta	<5	=5
Cyan	<6	=6
White	<7	=7

Use of this Variant command is strongly discouraged.
It conflicts with the ANSI standard, and is provided
only to support some applications which use it.

Any other parameter values are ignored.

SCO-ANSI colors

Select foreground color	\027[=PsF
Select background color	\027[=PsG
Select reverse color	\027[=PsH
Select reverse background color	\027[=PsI

```
Select graphic color                \027[=PsJ  Not Supported
Select graphic background color     \027[=PsK  Not Supported

Select intense background           \027[=PnD
Set color mode from 16 to 8 colors  \027[=PnE
   Also XENIX                       \027[3;Pnm
Unselect Background Color Erase     \027[=PnL
   Pn 0 = Off, Pn 1 = On

XENIX color selector sequences
   Normal colors                    \027[2;P1;P2m
   Reverse colors                   \027[7;P1;P2m

   P1 = foreground color
   P2 = background color

Report current colors selected      \027[=PsM
Ps =   0  Report normal colors
       1  Report reverse colors
       2  Report graphic colors
The report format is "forecolor# backcolor#\010"
   the numbers are sent as ASCII decimal strings
```

SCO-ANSI Color Table

Ps	Color	Ps	Color
0	Black	8	Grey
1	Blue	9	Lt. Blue
2	Green	10	Lt. Green
3	Cyan	11	Lt. Cyan
4	Red	12	Lt. Red
5	Magenta	13	Lt. Magenta
6	Brown	14	Yellow
7	White	15	Lt. White

SCO-ANSI color selection sequences with 16 background colors are supported when the SCO-ANSI terminal type is selected.

Protected Areas

```
   Start Protected Area                \027V
   End Protected Area                  \027W

      DEC Protected Character attribute

   Unprotected                         \0270"q    or
                                       \0272"q
   Protected                           \0271"q

      DEC Selective Erase (preserves protected areas)

   Erase from cursor to end of screen  \027[?J  or \027[?0J
   From beginning of screen to cursor  \027[?1J
   Entire screen                       \027[?2J
   From cursor to end of line          \027[?K  or \027[?0K
   From beginning of line to cursor    \027[?1K
   Entire line containing cursor       \027[?2K
```

```
      Scrolling Region
```

```
   \027[Pt;Pbr

   Pt is the number of the top line of the scrolling region;
   Pb is the number of the bottom line of the scrolling region
      and must be greater than Pt.
   (The default for Pt is line 1, the default for Pb is the end
      of the screen)
```

```
      Tab stops
```

```
   Set tab at current column      \027H
   Clear tab at curent column     \027[g   or   \027[0g  *
   Clear all tabs                 \027[3g                *

      * see \027[Png PC-ANSI variant below
```

Printing

Print screen	\027[i or \027[0i
Print without display on	\027[5i
Print without display off	\027[4i
Auto print on	\027[?5i
	(lines print as cursor moves off line w/ LF, VT, or FF)
Auto print off	\027[?4i
Print cursor's display line	\027[?1i

Character Set (G0 and G1 Designators)

Character Set	G0 Designator	G1 Designator
United Kingdom (UK)	\027(A	\027)A
United States (USASCII)	\027(B	\027)B
Graphics characters and line drawing set	\027(0	\027)0
Alternate character ROM	\027(1	\027)1
Alternate character ROM graphics characters	\027(2	\027)2
Lock Shift G0	\015	
Lock Shift G1	\014	
Lock Shift G1 Right	\027~	
Lock Shift G2	\027n	
Lock Shift G2 Right	\027}	
Lock Shift G3	\027o	
Lock Shift G3 Right	\027|	
Single Shift G2	\027N	
Single Shift G3	\027O	

PC-ANSI graphics characters

Output character <char> for display when <char> is greater than 159 \027<char>

<char> <result>

160 -> 127
161-191 -> 1-31
192-223 -> 128-159

and

Output character <char> for display where Pn > 5 (to avoid conflict with ANSI Clear Tab command) \027[Png

Use of this command is strongly discouraged.
It conflicts with the ANSI standard, and is provided only to support some applications which use it.

SCO-ANSI graphics characters

Output character <char> from the alternate graphics set \027=<char>g

---

Cursor Position Report

Invoked by \027[6n
Response is \027[Pl;PcR

* Pl = line number; Pc = column number

Status Report

Invoked by	\027[5n
Response is	\027[0n (terminal ok)
	\027[3n (terminal not ok)

Identify

Invoked by	\027[c or \027[0c
Response is	\027[?1;PsC

Ps = 0 Base VT100, no options
1 Processor option (STP)
2 Advanced Video option (AVO)
3 AVO and STP
4 Graphics processor option (GO)
5 GO and STP
6 GO and AVO
7 GO, STP, and AVO

Alternately invoked by \027Z (not recommended.)

Reset

\027c

Confidence Tests

Fill Screen with "E"s	\027#8
Invoke Test(s)	\027[2;Psy
Ps = 1	Power-up self test
8	Repeat selected test(s) indefinitely (until failure or power off)

VT52 Compatible Mode

Cursor Up	\027A	
Cursor Down	\027B	
Cursor Right	\027C	
Cursor Left	\027D	
Select Graphics character set	\027F	(selects Bold in dataComet)
Select ASCII character set	\027G	
Cursor to home	\027H	
Reverse line feed	\027I	
Erase to end of screen	\027J	
Erase to end of line	\027K	
Direct cursor address	\027Ylc	(see note 1)
Identify	\027Z	(see note 2)
Enter alternate keypad mode	\027=	
Exit alternate keypad mode	\027>	
Enter ANSI mode	\027<	

NOTE 1: Line and column numbers for direct cursor address are single character codes whose values are the desired number plus 37 (in Octal). Line and column numbers start at 1.

NOTE 2: Response to \027Z is \027/ Z.

---

dataComet documentation. (Rev. 2/20/2010)

This document has information on (select and use "Find" to go to the section):

Using the dataComet-Secure menu

"About dataComet..."/"About dataComet-Secure...": Information on the application.

"Preferences": Brings up the Preferences panel so you can change the configuration of "Global" settings and the options available for session windows:

"Global": The "Global" Preferences panel allows you to control several important features of dataComet. All the other items in the Preferences panels affect only the topmost window.

"Printing": Allows you to configure printing parameters which aren't included in the "Page Setup..." dialog.

"Session": The Session Preferences panel allows you to control various features associated with each window, such as whether it will shrink when you switch applications in MultiFinder and the keymapping for the emulator being

used.

"Views": Allows you to show or hide the controls around the emulator screen.

"VT100": Allows you to configure items specific to the ANSI/VT100 emulator.

"3270": Allows you to configure items specific to the IBM 3278/3279 emulator.

"Color": The Color Preferences panel allows you to assign different colors to different field types on the emulator screen, using the standard Color Picker dialog. You can use Copy and Paste to copy the 16 colors from one dataComet "Color" Preferences panel to another.

"Keypad": Allows the user to choose which of several keypad configurations will be used.

"Transfer", "SCP", "ZModem", "IND$FILE: These Preferences panels allow you to control file transfer options. See "6. File Transfer" for more information.

Using the File menu

"New": This submenu is used for creating new windows:

> "Terminal Session…": Creates a new session; the "Configure Terminal Session…" dialog comes up, which allows you to choose the connection type you wish to use, the terminal type you wish to use, and the host address. (For more information, see the Help document "3. Dialogs" section titled: "Using the "New…"/"Configure Terminal Session" dialog".) The "Comet Default" document is used as a template for new sessions, so that a new session's connection type, terminal type, window positions, font size, etc., will be the same as your "Comet Default" document.

> "Text Window": Creates a new edit window named "Untitled".

> "Shell": A shortcut for opening a local Shell session to use the BSD UNIX command line on your own OS X machine.

> "Clone": Opens a new window with the same settings and properties as

the current topmost window.

"Open…": Calls up the Standard File Dialog to open a dataComet session document (or, if you hold down the Shift key, a text-only document). When a connection is made, the session's Connection Macro (see "Set Connection Macro" in the Macro Menu) will be executed.

"Close": Close the session document associated with the top window and release all storage associated with the session.

"Save Configuration…": Saves a document's configuration. If you change the name of a document, the new session will use the current session's configuration as a template; key macros are copied to the new document.

"Documents": This submenu allows you to open saved dataComet text documents quickly; the documents listed first are those saved in the dataComet application home folder, those listed after the bar are those saved in the dataComet Preferences folder.

"Sessions": This submenu allows you to open saved dataComet session documents quickly; the documents listed first are those saved in the dataComet application home folder, those listed after the bar are those saved in the dataComet Preferences folder.

"Transfer": This submenu allows you to control file transfers. More options are available in the "Transfer" Preferences panel.

"Save screen as…":, "Save selection as…":, "Save text as…": Presents a Standard File Dialog so you can select a file in which to save either the current emulator selection (or the whole screen if no selection has been made), or the contents of the text window. Saving will delete any text already in the file.

"Append screen to…":, "Append selection…":, "Append text to…": Works like the command above, except it will append data to the file you select rather than deleting existing text.

"Save screen…":, "Save selection…":, "Save text…":, "Save text as": Saves the data in the file which has been opened by the "Save as" or "Append to" commands. This will delete any text already in this file. If no file has been selected, you will be presented with the Standard File Dialog so you can choose one.

"Append screen to":, "Append selection":, "Append text to": Works like the command above, except it will append data to the file you have already selected.

"Open Log…": Presents the Standard File dialog so you can choose a file in which to log your session.

"Log session in": Allows you to turn session logging to the file selected with "Open Log" on and off .

"Page Setup…": Allows you to set up the printer when you are printing using the standard Print dialogs.

"Print screen…":, "Print selection…": By default, this item presents the standard Print dialog so you can print the emulator screen, a selection from the screen and scrollback buffer, or the .edit text. This delivers a faithful rendering of the screen using the entire character set.

"Print lines off top": All lines which scroll off the top or are cleared from the emulator screen will be printed.

"Page Eject": Prints a page if text has accumulated in the print buffer. Pressing the Shift key resets the page number without performing a page feed.

"Quit": Quits dataComet. You will be prompted to close any open connections which are currently open, and will be prompted to save changes that you have made to session configuration settings.

Using the Edit menu

"Undo": Undo applies to the latest Cut command in an edit window.

"Cut": If the .edit window is in front, this command cuts the selection range and copies it into the Clipboard.

"Copy": Makes a copy of the screen or the selection (if one exists) or the text selection and copies it into the Clipboard.

"Shift-Copy" copies an emulator window selection as wrapped text (to handle wrapped lines without adding spurious returns).

"Paste": Pastes the contents of the Clipboard into the screen or text at the current cursor location. In edit windows, "Option-Paste" performs a "Repeat Paste" operation (i.e., "Find selection" followed by "Paste"); "Shift-Option-Paste" performs a "Replace all". (Note that ASCII pastes are

handled as a macro; to interrupt an ASCII paste to the host you need to abort the macro by pressing "Command-.", and then send an interrupt to the host.)

"Clear":, "Clear buffer": If the .edit window is in front, the "Clear" command clears the selection range. If "Clear buffer" appears, then the whole emulator scrollback buffer is cleared.

"Select All": Selects the whole emulator scrollback buffer or .edit window text.

"Table Mode for Copy and Save": If the beginning of the selection range is less than the end of the selection range when you do a Copy or Save, only the text in between the beginning column and ending column of the range will be copied, so that you can exclude portions of the table. When this mode is on, the "Session" Preferences panel item "Tab threshold" controls whether runs of blanks will be converted into Tab character to assist in copying tables from the terminal screen and pasting them into programs such as spreadsheets.

"Append file to .edit window…": Presents the Standard Get File dialog and appends the TEXT format file you select to the session's .edit window.

"Append screen to .edit window":, "Append selection to .edit window": Appends the screen or selection to the end of the session's .edit window.

"Record session": When this mode is on, the contents of the emulator screen will be automatically appended to its .edit window when the emulator screen is cleared or lines scroll off the top.

"Page up": Move up one page in the scrollback buffer or the .edit window.

"Page down": Move down one page in scrollback buffer or the the .edit window.

"Go to line…": Offers a dialog to jump to a line number in a window. A return will cause the cursor to move to the end of scrollback buffer or the the .edit window.

"Find…": Offers a dialog to enter a text string you want to find in the scrollback buffer or the .edit window. The current selection is automatically placed in the dialog. You can hold down the Shift key to search backwards.

"Find Again…": dataComet will try to find the last string for which you searched. You can hold down the Shift key to search backwards.

"Add Returns": Adds a Carriage Return at the end of each line in the .edit window selection so the text can be pasted into a host document without lines overflowing.

"Remove Returns": Removes any Return from the .edit window selection which does not have adjacent Return or spaces.

Using the Cursor menu

Some of these items only affect edit windows.

"Set": Set the cursor position to be in the current screen.

"Show": Display the current selection.

"Delete ->": Delete the character to the right of the cursor, or the selection and the character to the right of the selection.

"Shift Left": Shift the lines in the selection left and delete any spaces found in the first columns.

"Shift Right": Shift the lines in the selection right and insert a space in the first column.

"Match brackets": Sets the selection to the text inside the next pair of brackets, which include quotes and brackets. Holding down the Shift key searches backwards. (You can modify the behavior of bracket matching by modifying the 'BRCK' resource in dataComet, which specifies the bracket pairs).

"Left": Moves the cursor left one character.

"Word Left": Moves the cursor left one word.

"Down": Moves the cursor down one line.

"Sentence Down": Moves the cursor right one sentence.

"Up": Moves the cursor up one line.

"Sentence Up": Moves the cursor left one sentence.

"Right": Moves the cursor right one character.

"Word Right": Moves the cursor right one word.

"Execute": Executes the text as a macro in the context of the frontmost host.

"Send": Send the selection range or paragraph to the next frontmost host window as text.

"Word Count…": Brings up the "Cursor Word Count…" modeless dialog, which displays a count of lines, words, and characters in the current selection.

"Use Selection for Find": The next Find command will use the selected text when performing a search.

Using the Control menu

"Lock": The "Lock" command enhances security by allowing you to disable keying and menu commands in dataComet-Secure until a master passphrase is entered, preventing unauthorized users from tampering with your open sessions or opening session documents for which you have entered passwords. (This command is not available in dataComet.)

"Internet Config…": Unfortunately OS X does not provide an interface for editing Internet Config settings, though the services still work. If supported, this command would launch Internet Config so you can easily modify the File Mappings used by dataComet's ZMODEM, SCP, and IND$FILE implementations. Currently the only method of altering these file mappings is to download Internet Explorer, which still works under OS X as of Snow Leopard (10.6).

"Record Beep…": The Record Beep dialog allows you to record a sound which will be used in place of the system beep when a host sends a Bell to a dataComet emulator window. If you have copied a sound resource into the Scrap and Paste it into a dataComet window, the sound will be saved and used as the session's Beep sound.

"Delete Beep": Deletes the beep you've recorded to supplant the system beep.

"Font": Allows you to set the fonts used for screen drawing and printing. Selecting a font from the list sets the font which will be used on-screen.

You can change the font used for printing by holding down the Option key; the selected print font is marked with a '>' if it differs from the screen font.

Selecting a Font will automatically set the translation for Comet-Fonts and standard Macintosh fonts; for other, non-standard fonts (e.g., an alternate "ISO-Latin-1" font) you will need to set the translation manually. If a font with the same name ending in "Bold" will be selected automatically for the Bold font; if none exists, dataComet draws bold characters using the selected font; you can still select an alternate Bold font manually.

"Size": Allows you to set the font sizes used for screen drawing and printing. Selecting a size from the list sets the font size which will be used on-screen. You can change the font size used for printing by holding down the Option key; the selected print font size is marked with a '>' if it differs from the screen font.

"Leading": Allows you to change the font leading for both emulator and text windows, so you can select whatever line height you prefer if the default height is not to your liking.

"Width": Allows you to change the font width used on the emulator screen. This can help make proportional fonts more readable.

"Bold Font": Allows you to set the font used for drawing text with bold attributes in the emulator screen. "Use Normal Font": lets you disable font bolding.

"Control Font": Allows you to set the font used in the text drawn in the area around the emulator screen.

"Translation": Allows you to select character translation tables for remapping input and output from the host character set (e.g., ISO Latin-1/8859-1) to the "standard" Macintosh character set and back. When used with a native Macintosh font such as Monaco, this allows you to use the standard keyboard layout supplied with your system, and eases pasting text into your Macintosh at some loss of exactitude. If you want to correctly display all the characters in a font such as ISO Latin-1 or PC-ANSI (PC-850) you can use a dataComet font and select "Shift-Translation". NOTE that Translation table names use '<>' for ASCII tables and '{}' for IBM EBCDIC tables, e.g., "Mac <> ISO Latin-1" and "Mac {} IBM1145_Spanish".

"National": Allows you to select a National Replacement Character Set, which translates some ASCII characters into "foreign" characters. For the VT100, these characters are #, @, [, \,], ^, _, `, {, |, }, and ~.

Using the Telnet menu

"Type my address at cursor": Enters your Internet address at the cursor position. This is useful with file transfer programs such as TFTP.

"Send Telnet command": A hierarchical menu which allows you to send Telnet commands, which give a standard way of performing some common operations with diverse hosts.

"Erase character":	Delete the character to the left of the cursor.
"Erase line":	Erase the current line of input.
"Are you there":	Send a request to the host to confirm that a connection still exists.
"Interrupt process":	Abort the current job on the host.
"Abort output":	Abort the output from the current job on the host.
"Break":	Send a Telnet Break to the host.

"7-bit characters", "8-bit characters": This setting allows you to set the character size for host communications. Select to switch between the two options.

"Send after return", "Send characters promptly": Wait to send command lines to the host until the Return key is pressed (not applicable to 3270 emulation). Select to switch between the two options.

"Local echo", "Remote echo": Echo characters locally and have the host stop "echoing," or sending each character received back to the emulator (not applicable to 3270 emulation). Select to switch between the two options.

"My Address -- xxx.xxx.xxx.xxx": Displays your Internet address. Selecting this menu item sends the address to the host.

"Host Address -- xxx.xxx.xxx.xxx:pp": Displays the Internet address of your host, and the port to which you are connected. Selecting this menu item sends the address to the host.

"Host Name -- HostName": The name of the host to which you are connected. Selecting this menu item sends the host name to the host.

Using the Serial menu

"Send Sytek Escape": This command offers a convenient method for sending the standard <Ctl-A><Ctl-B> character sequence used to escape to the Sytek command level when you are connected to a host over Sytek.

"XON-XOFF", "Hardware handshake": You can configure the serial port to use two different kinds of handshaking to help guarantee that no data is lost when it is transmitted between the modem and your Macintosh.

Hardware handshake is the preferred option. A special cable is required to use hardware handshake, which uses two of the RS-232 lines (CTS and DTR, for output and input flow control respectively) to signal that the modem or Macintosh can't handle more data immediately. Your modem must also be properly configured for hardware handshake to work: for USR modems, configuring it with "AT&F&B1&H1&I0&R2&W" should work. Selecting hardware handshake disables the menu items "Hang up phone" and "Hang up on close," which use the DTR line to signal the modem to hang up.

If you lack a cable which can support hardware flow control, you will use XON-XOFF to help control data transfer. You can configure a USR Courier to do this correctly using "AT&F&B1&H2&I1&R1&W".

"Reset 8th bit": Clears the high bit of a data byte, which may contain garbage when connections 8 data bits are used with hosts which leave garbage in the high bit (e.g., UNIX). This allows transparent ZMODEM functionality.

"Baud": The items under this heading set the speed at which the port will communicate.

"Parity": The items under this heading set parity checking.

"Data Bits": The items under this heading set the number of data bits.

"Stop Bits": The items under this heading set the number of stop bits.

"Hang up phone": Drops the DTR line on the serial connection to the modem. This should cause your modem to hang up; if it does not, check your modem and cable configuration.

Using the Macros menu

"Macros" are command sequences that are triggered by a keystroke or button press. See "4. Macros" for more information on macros.

"Record Actions for Macro…": Starts recording of keystrokes, selections, and menu item choices as a macro. This option tries to generate correct '!Z\255' macro "waitfor" strings (and for ASCII sessions a 2-second delay after the match) so that host interactions can be easily automated. While recording, there is an automatic delay when characters are typed to obtain the the best results with ASCII hosts, where there is a delay before the host echoes the character back.

NOTE that when recording IBM 3270 sessions the '!Z\255' macro wait commands which are automatically generated may fail when using full-screen oriented applications where the data changes in different records but the screen format and prompt remain the same. In such cases performance is greatly enhanced by cutting out the macro wait commands. (You can hold down the Shift key when selecting the menu item or use the '!Ra' macro command to turn macro wait generation off when recording macros.)

NOTE that if you use a macro to open a new window or select another window, macro commands on the front window's command queue which have not yet been executed will be transferred to the new window's command queue. If you want to define a macro which includes further commands for the current window after opening or selecting another window, use the "!W}" macro command to cause subsequent macro commands to be directed to the current window.

"Record end--ready to Paste": Ends macro recording and places a copy of the macro into the Scrap so it can be pasted into a macro dialog text box or the .edit window.

"Dump Macros into Text Window": Brings up and edit window listing keys which have had key macros defined. If the macro is only a single character, a three digit decimal number is also printed to make it easier to copy and paste the key into the Key macro dialog. If you hold down the Shift key, a table displaying the character set will be dumped instead.

"Key Macros On": Switches the use of key macros on and off, so that the standard keyboard interpretation can be easily restored.

"Define Macros…": Brings up a dialog which allows the user to remap the keyboard and keypad by associating a key with a macro command. In general,

key macros are sequences of characters and commands executed when a key associated with a macro is pressed. The macro dialog is also used to control the titles and macros associated with Macro menu user macros and emulator buttons. See "4. Macros" for more information on key macros.

"Set dataComet Launch macro…": Presents the "Define Macros" dialog and allows you to set a macro command sequence to be executed when dataComet is launched. This macro can be used to configure dataComet to run as a secure kiosk terminal. (See the document "A3. Public Terminal Kiosk Configuration" for more information on this configuration option.)

"Set dialup macro…": Presents the "Define Macros" dialog and allows you to set a global modem dial macro which is executed before the "Connect to:" telephone number string for Serial connections is sent. This is only executed if the "Connect to:" string is present.

"Add Macro Button…": Presents a macro entry dialog which allows you to add a macro button to the panel at the above the emulator screen.

"Set Single-click macro…": Presents a macro entry dialog which allows you to set a macro command sequence to be executed when you click the mouse in the emulator screen to move the cursor (this supplants either Click or Option-Click depending on the "Global" Preferences panel setting for "Option-click sends cursor motion key sequences". When this option is selected, you must press Option-click to send this macro).

"Set Double-click macro…": Presents a macro entry dialog which allows you to set a macro command sequence to be executed when you double-click the mouse in the emulator screen. E.g., on a UNIX machine, you could set the double click macro to "!EW!ECvi !EV" to allow you to edit a file name listed in the emulator window by double-clicking on it (this is another variation on the useful Click/Copy/Paste function performed by Control-Click). If no Double-click macro is set, dataComet will select the current word at the cursor by default.

"Set Connection macro…": Presents a macro entry dialog which allows you to set a macro command sequence to be executed when a connection is made. This is useful for partially automating logins, but PLEASE… don't put your passwords in Connection macros! Use the "!QS" macro to prompt the user for the password instead.

"Set Close macro…": Presents a macro entry dialog which allows you to set a macro command sequence to be executed when a connection is closed. In order to ensure that the screen is properly displayed, you may need to add a delay at the end of the macro; dataComet will close the connection if it is not already closed by host actions initiated by your macro.

"Add Menu Macro…": Brings up the "Define Macros" dialog and prompts you for the name of a new user-defined macro to add to the Macro menu. You can modify existing user-defined macros in the Macro menu by selecting them using "Command-Menu Select". Note that menu macros are always global, and like other global settings they are saved in the "Comet Default" document.

Using the Window menu

"Close session": Closes a session with a host.

"Abort session": Closes a session with a host without going through the closing negotiations with the host; if an host connection is failing to connect promptly, or you know you've lost a serial connection, you can use this command to save some time; ordinarily you should use "Close session".

"Re-open session": Allows you to attempt to re-open a session which has failed to open or has been closed. If a connection is made, the session's Connection Macro will be executed.

"Reconfigure session…": Lets you use the "Configure Session" dialog to reconfigure a session after you have created or opened it. You can change to name to create a "clone" of the current session with the same settings and macros as the current session.

"Scrollback buffering": Lets you turn scrollback buffering in the emulator window on and off. Note that when this feature is used with sessions on IBM mainframes, screens are saved when the user enters a PF key; thus, if the user allows screens to automatically page on the IBM host, they will NOT be saved.

"Toggle .edit Window": Bring the .edit window associated with the topmost emulator session to the front. Holding down the Option key will allow you to direct macro execution, including key macros, into the .edit window, and will change the appearance of the mouse cursor and place a '>' in front of the menu item to indicate that an alternate macro mode is enabled.

Note that usually macro output in an emulator session is directed into the emulator window, so that key macros will be sent into the emulator window even when the .edit window is frontmost; in this respect there is a significant difference between .edit windows associated with sessions and other text windows. This option allows you to redirect macros into the .edit window, so that it's possible to use global key macros in the .edit window

context also.

Shift-"Toggle .edit Window": Brings up the "Go to Line..." dialog.

"Minimize": Shrinks the window to the Dock or to a small icon. If data arrives while a session window is miniaturized, the icon is highlighted. The icon position is automatically saved when the document is closed.

"Zoom": Zooms the window in the same way as clicking the zoom box.

"Next": Select the next window in the window menu list. "Option-Tab" is used as the command key, since Apple pre-empts all Command-Tab key combinations for application switching; pressing "Shift-Option-Tab" selects the previous window.

"Bring All to Front": Brings all dataComet windows to the first layer of windows.

Window List: A list of session/window names follows; the first 9 are associated with the Command keys 1-9. Selecting the item brings the window to the front.

Items in the list of sessions may have marks to indicate special conditions. Active host sessions are maked with a bullet; Telnet sessions which have terminated abnormally are marked with a cross. Minimized windows are marked with a '-'; minimized session windows are marked with a '±' if they are connected.

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dataComet documentation. (Rev. 7/14/10)

This document has information on (select and use "Find..." to go to the section):

"Using modeless configuration dialogs"

The modeless configuration dialogs allow you to control window settings and dataComet's global configuration. Settings take effect immediately when an option is changed. To cancel changes made in a dialog window, use the "Revert" button, the "Undo" command, or press Command-'.'.

In order to make dialog option changes to a session document permanent, you need to use the File menu command "Save configuration...". You will be prompted to save the settings when a window closes if the settings have been modified. (Note that "Control" menu settings for Font, Size, Leading, Width, Bold Font, Control Font, Translation, and National are saved automatically when a window is closed.)

When you select another document window, the settings in the Preferences panel change to reflect the settings for that window. The menu commands other than Close, Copy, Paste, Undo, and Select All apply to the frontmost

document window.

You can Control-Click on a Preferences panel item to jump to the description of the item in this document. You can click on the Preference panel names in the bar at the top of a Preferences panel to open other Preferences panels.

"Reconfigure Session…"

Using the "New…"/"Configure Terminal Session" dialog in Window menu as: "Reconfigure Session…":

This dialog allows you to configure the most fundamental parameters affecting a window, including:

"Window Type": You can select "Shell" to create a local Shell session, or select "Serial", "SSH", or "Telnet" to create a new session window to connect with a remote host (which will have its own ".edit" window in which you can save frequently used commands and boilerplate text).

"Shell" creates a new local shell session, like a session opened using Apple's "Terminal" application. This will execute the "/usr/bin/login" UNIX command in a new window.

"Serial" allows you to make direct Serial Port connections to a modem or terminal server. You can enter the phone number in the "Connect to:" field to dial a number automatically.

"SSH" selects the Secure Shell protocol, which adds authentication and encryption features so session data, e.g., passwords, can't be traced by systems crackers. The SSH "Configure..." button brings up a dialog which allows you to customize SSH session options. Enter the host name or its IP address in the "Connect to:" field.

"Telnet" lets you make Telnet TCP network connections. The Telnet "Configure..." button brings up a dialog which allows you to customize Telnet session options. Enter the host name or its IP address in the "Connect to:" field. Options for Telnet include:

- "Initiate SSL/TLS": Open a session with an SSL/TLS Handshake negotiation without waiting for a Telnet "Start TLS" command from the host; if a socket number is not specified, it will default to socket 992. If this option is not selected, dataComet will only initiate SSL/TLS when a "Start

TLS" command is received from the host; note that it will always negotiate SSL/TLS when a "Start TLS" command is received.

- Telnet "Authenticate" and "Encrypt" security options are available for Kerberos 5 connections, which require that you are connecting to a host which supports Kerberos 5.

- "Authenticate" uses Kerberos to log in to a host in a secure fashion, so system hackers can't crack your accounts by logging network traffic. The "Alt. ID" field below "Authenticate" allows you to enter your host login name, which will be needed if it differs from your Kerberos Principal ID (see information on "Username" below). You can make automatic Kerberos connections, skipping the login dialog, if you enter your Kerberos password in the "Password" field (see below).

- "Encrypt" adds another layer of security by encoding all your communications with the host so that it's very difficult to eavesdrop on your transmissions.

- The "Fwd Creds" option allows you to forward your Kerberos credentials to the host so you can access network services on other hosts through your Telnet connection (generally this should be disabled unless you actually need to do this).

"Terminal Type": This popup menu allows you to select the preferred terminal type. The "Automatic" terminal type will default to a VT100 on a serial connection; on a Telnet connection "Automatic" will negotiate the "best" terminal type to use with the host. Note that a few hosts may not perform terminal type negotiations correctly, so "Automatic" mode may fail. In particular, you will need to set the PC-ANSI terminal type manually to get correct results when connecting to many bulletin board systems (BBS).

The "Alt. ID" field lets you enter an alternate Telnet Terminal Type string if the default string doesn't work correctly with your host. Generally you should use this with a specific terminal type selected rather than "Automatic." (You can set this field back to an empty string to disable this feature.)

"Host menus and function keys": This popup menu allows you to select alternate menus when you're connecting to a host which ordinarily expects a terminal type which has different Program Function (PF) keys, but which can use an alternate terminal type if you enter special key sequences to substitute for the standard Function keys. This option makes it much easier to use a VT100 emulator with an IBM 3270 mainframe, or to use the IBM 3270 emulator with an AS/400 host. For UNIX hosts, alternative function key mappings are listed here by the "TERM" name commonly associated with the

keymapping.

"Username": This field allows you to enter the name of your host account. This is sent automatically for SSH and Kerberos Telnet logins, but not for plain Telnet logins. You can make automatic Kerberos connections, skipping the login dialog, if you also enter your Kerberos Principal password in the "Password" field.

"Password": This field allows you to enter the password for your host account. The password is stored in an encrypted form, with your Master Passphrase as a secret key. This is sent automatically by SSH or Kerberos when password authentication is selected. WARNING: be careful to "Lock" your sessions if you use this feature, and to select a Master Passphrase which will be difficult to guess!

"Connect to:" This field is used to enter either a host name (for SSH and Telnet connections) or a telephone number (for Serial connections).

If you are making a Telnet connection, this field must contain the IP address or domain name of the host to which you wish to connect.

"Port:" If you need to specify a port number other than the standard SSH, Telnet, or SSL/TLS port numbers (22, 23, and 992 respectively), you can enter the port number here.

"SOCKS proxy": This controls whether the Host Name/Address which follows is to be used as a proxy so connections can traverse network firewalls.

"Global": By default, this control is on; it allows you to select a global SOCKS default host for all Telnet sessions. If you turn it off, you can enter a SOCKS proxy to be used for this session alone.

"SOCKS Username": The SOCKS username (in case this is required).

Telnet "Configure…"

Using the Telnet "Configure…" dialog

This dialog allows you to configure special options for a Telnet session.

SSL/TLS options:

"SSL/TLS version": Allows you to select a specific version of SSL/TLS to

use for SSL/TLS connections.

"Allow expired host certificate": Allows you to connect to a host with an expired SSL/TLS certificate.

"Allow any root certificate": Allows you to connect to a host when the host has an untrusted root certificate.

"Verify host domain name": SSL/TLS will check the host domain to to prevent host name spoofing when this option is on.

Kerberos Options:

"Authentication": Allows you to select a protocol for performing authentication with hosts for a Telnet session. The checkbox can be used to disable Authentication. Currently only Kerberos 5 is supported.

"Encryption": The checkbox can be used to disable Encryption. Telnet allows the selection of a number of different encryption algorithms, which encrypt the plain text of your session so that eavesdroppers cannot (easily) decipher it. "DES3" Triple-DES encryption is the most secure option; generally you should use it rather than DES. Note that if no lock picture appears in the left bottom side of the emulator window after you connect, the session is not being encrypted; some hosts may not support DES3 encryption over Telnet sessions.

"Compression": This option is not yet supported.

"WILL SGA (Berkeley linefeed fix)": Causes dataComet to send WILL SGA, the Telnet Send-Go-Ahead option, in order to get BSD UNIX derivatives to handle carriage returns correctly.

"WILL NAWS (Negotiate Window Size)": Causes dataComet to send WILL NAWS, the Telnet option which allows the host screen size to be adjusted automatically if you change the size of a dataComet emulator screen.

"Display log messages on-screen": Display the Telnet logon messages on the emulator screen. This can help debug connection problems, and shows the Telnet options that are available on the host and which options are actually selected for the session.

SSH "Configure…"

Using the SSH "Configure…" dialog

This dialog allows you to configure a "Secure Shell" (SSH) session. Support for these options is only included in dataComet-Secure.

"SSH Version": There are two different SSH protocols, SSH1 and SSH2. This option allows you to force an SSH2 host to select SSH1 or SSH2 rather than allowing it to make the choice.

"Encryption": SSH allows the selection of a number of different encryption algorithms, which encrypt the plain text of your session so that eavesdroppers cannot easily decipher it. Triple-DES is the most secure option; Blowfish is somewhat faster than 3-DES but probably not quite as secure.

"Compression": SSH can compress the data stream, which enhances security and may speed up (or slow down) sessions substantially; the speed increase (or decrease) will be directly proportional to the ratio between the speed of your computer and the speed of the network connection (e.g., if you have a Macintosh G3, a session with compression on is much faster on a slow dialup connection, still significantly faster with an Ethernet connection, and possibly slower if you have a direct Gigabit Ethernet connection to a very fast host).

NOTE that using compression requires an extra 250K bytes of memory per session!

"MAC type": SSH2 helps guarantee communications security by adding a "Message Authentication Code" field to each data packet. The "SHA-1" protocol is used by default.

"Authentication": SSH offers several different methods of "authenticating" your identity to the host. Passwords are the same as your usual host password, with the major difference that under SSH passwords are encrypted so eavesdroppers can't use network "sniffers" to steal your password. RSA and DSS "public key authentication" methods are used by SSH1 and SSH2, respectively; dataComet-Secure only supports RSA public key authentication. RSA keys must be saved in the ":dataComet Preferences:Security:" folder. NOTA BENE: Maintaining security while using a public key REQUIRES that the private key be encrypted using a Passphrase (which can be the same as your Master Passphrase) and should not be shared

with other users.

"Keys…": This button brings up a dialog which allows you to create, save, view, and copy public keys, so you can copy and paste them into host key files.

"Use Key…": This button allows you to select the private key file which will be used for an SSH session if you select one of the public key methods in the "Authentication" popup menu.

"Display log messages on-screen": Display the SSH logon messages on the emulator screen. This can help debug connection problems, and shows clearly the SSH options that are available on the host and which options are actually selected for the session.

"Don't allocate PTY (host terminal handler)": This option allows you to skip creating a "pty" on the host, which is used to control the interface to applications on the host which need terminal control information. (You will almost always want this option off!)

"Execute command (rssh)": Allows you to execute a command on the host and then close the session automatically. You can enter the command to be executed in the text field below.

Using the SSH "Keys…" dialog

This dialog allows you to manage RSA keys for user authentication of SSH1 "Secure Shell" sessions. (Use of RSA keys with SSH2 is not yet supported by dataComet.)

The "Key File..." button allows you to open a key file in the dataComet "Security" Folder in the "dataComet Preferences" Folder so you can view and copy the public portion of the key, and save the key with a new name and passphrase if you wish.

The "Public Key" field shows the public key for the key. This is the key which is added to the host file "~/.ssh/authorized_keys" to enable you to log on to the host using your key rather than a password. You can copy the Public Key in this field and then paste it into "authorized_keys" file using a host editor. NOTE that you should make every effort to keep the private portion of the key file private, including using a passphrase to encrypt it. If someone copies your private key, the can log on to your account, just as if you had given them a password for a password-protected account.

The "Fingerprint" field shows the fingerprint of the key, which is a condensed representation of the key useful for verifying (e.g., in a telephone conversation) that a key is valid.

The "Make Key…" button brings up a dialog which allows you to generate a new key.

The "Save Key…" button allows you to save a key.

Using the SSH "Make key…" dialog

This dialog allows you to generate RSA keys.

The "Key Size" field allows you to specify a size other than the usual 1024-bit key length. If you want your encrypted communications to remain secure over a long period of time, you should use more than a size greater than 1024, probably 2048. Note that it takes substantially more time to generate the key and to verify it when making a host connection when you use a larger key.

The "Comment" fields allows you to enter a comment, which will be appended to the newly generated key.

The progress bar indicates roughly the amount of work left in generating the key.

Using the "Kerberos Login" dialog

This dialog allows you to log in with a Kerberos ID and password. It is brought up automatically if you do not already have a valid Ticket from the Kerberos server. You should enter your Kerberos ID in the "Principal" field; for example, "wpenn@UPENN.EDU", and your Kerberos password in the "Password" field.

"Custom Ticket lifetime (min.):" This option lets you select a custom expiration time for the "Ticket" which the Kerberos server will send to your computer so it can prove your identity to other computers. Selecting a shorter lifetime makes it even more difficult for system crackers to gain access to your accounts, but may require you to re-enter your password more

frequently when using some services; the default lifetime is 10 hours (600 minutes).

"Allow ticket forwarding": This option lets you allow Macintosh applications which use Kerberos to forward your ticket to a network host or server so that it can in turn verify your identity with other hosts or servers. Enabling this option poses some security risk, since crackers may breach security on a multi-user host/server and try to collect tickets to use to violate the privacy of your accounts. Unless you need it, this option should be left turned off.

"Global…"

Using the "Global" Preferences panel

The global configuration is automatically saved in the "Comet Default" document when you quit dataComet. If you find that dataComet tends to crash on launching, try throwing out the "Comet Default" document in the System Folder.

"Change Passphrase": dataComet-Secure allows you to save your session passwords encrypted using a master passphrase so you can speed up logins without seriously compromising the security of your passwords. If you wish to change your master passphrase, you can use this button to update the session passwords saved in the session documents store in the "dataComet Preferences" folder with a new password. (Note that passwords saved in session documents in other folders must be updated manually).

"Splash Delay": When a registered copy of dataComet is launched it defaults to a 3-second minimum splash display; turning off this item will clear the splash screen ASAP (rather than waiting to better display the support contact information which may be included in the splash screen).

"Show "New session" dialog on launch": Automatically display a "New..." dialog when dataComet is launched.

"Open "Comet Default" automatically on launch": Opens the "Comet Default" document without presenting the "New..." dialog.

"Hide all session .edit windows": Hides all session .edit windows for users who don't wish to use them.

"Append ".txt" suffix to text window names": Adds the standard ".txt"

suffix to text window name when the "Save text as..." dialog is used. (This option does not apply to the "session.edit" windows.)

"Quit automatically when all windows closed": Quit the application when there are no open windows.

"Option-click sends cursor motion commands": Allows you to switch between requiring a simple mouse Click and an Option-click to send cursor key movement commands in ASCII emulator windows. Prior to 4.5.2, dataComet used a simple click; however, some host applications don't handle cursor key motion sequences properly, and in addition other Telnet applications require Option-click, so Option-click is now required by default. (3270 emulator windows still position the cursor automatically with a simple mouse click.)

"Don't constrain emulator window size": Allows you to resize windows so they span across two monitors. This is off by default so all window controls will always be accessible when a window size larger than the available screen area is selected.

"Expire Kerberos tickets on Quit": Expires Kerberos tickets created through a dataComet-Secure session automatically when you quit dataComet. This option enhances security, and is on by default.

"Update all Finder -> dataComet document links automatically": When this option is enabled, all dataComet text documents and session documents in the Documents and Sessions folders will be updated automatically so they open the last-launched copy of dataComet when they are opened from the Finder or the Dock; this allows correct linking of dataComet documents with the dataComet application, even though Snow Leopard no longer associates application documents with applications according to the document Type and Creator codes.

"Display an alert once when a new release is available":
"Display an alert once when a new Beta release is available":
These options allow you to disable dataComet update notifications.

"Display bitmap fonts for selected fonts and sizes": When this option is enabled, dataComet will scan its list of fonts and sizes, and disable antialiasing for drawing when a match is found, so that a font can be drawn with a bitmap representation.

"View Font List": Allows you to view and edit the list of fonts and sizes which are to be drawn with antialiasing disabled.

"Use text cursor only": If you disable this item a double underscore cursor is used to show the mouse cursor position within the active emulator window.

"Hide cursor in background windows": The emulator cursor will be hidden if the emulator window is not in front.

"Copy screen if no selection": If this option is on, a "Copy" command copies the whole emulator screen when there is no selection. You can turn this off if you find you have a problem with inadvertently copying and pasting the screen when you try to make a selection first but fail to select anything. (Note that this will affect the execution of dataComet Copy commands used in an AppleScript.)

"Update Scrap only on switch": dataComet uses the TextEdit Scrap to contain the results of a Copy or Cut command, and updates the Application Scrap in parallel to ensure that extensions which rely on the Application Scrap will work correctly (e.g., QuickKeys & CopyPaste). This option allows you to conserve memory by updating the Application Scrap only when leaving dataComet.

"Reset emulator selection after Copy": When this option is on, a Copy, Save, or Append command will reset the selection range to no selection, so the whole screen becomes the default selection range for the next Copy, Save, or Append. If you want the selection to remain fixed on the screen so you can the same selection on successive screens, turn this off.

"Clear scrollback buffers automatically": This option allows you to free memory when it runs short by automatically clearing the scrollback buffers for emulator sessions which are currently in the background and not currently processing output; thus, if you alternate between several sessions configured with "unlimited" scrollback buffering, you won't need to repeatedly clear background buffers manually to allow fresh lines to scroll in the topmost window.

"File Transfer options":

"Always do dialog to rename files": Before transferring a file, dataComet will present a Standard File dialog allowing you to select (upload) or rename (download) the file. This is off by default.

"Archive overwritten files in ".back"": This option automatically appends the contents of a file to "filename.back" before the download commences and overwrites the file.

"Printing…"

Using the "Printing" Preferences panel

"Add page numbers at bottom of page": Page numbers will be added.

"Print using Color map": allows color printing.

"Print lines scrolled off top": All lines scrolled off the top or cleared will be printed (this duplicates the Menu item "Print lines off top").

"Show "Print..." Dialog when printing host print streams": allows you to disable print dialogs when printing VT100 print streams.

"Eject page when host turns off stream printing": Some host applications repeatedly turn VT100 print streams on and off in the process of printing a page. This option allows you to configure dataComet to handle this without starting a new page every time stream printing is turned off; note that when this option is enabled you may have to use the "Page Eject" command in the File menu to print out accumulated print data if the application fails to send a Form Feed.

"Print scrolling region only": is a VT100 print option, usually selected by the host.

"Screen Font": Allows you to set the font used for drawing on-screen from the dialog.

"Print Font": Allows you to set the font used for printing from the dialog.

"Size": These popup menus allow you to set the size of the font used for drawing on-screen or when printing.

"Printing Margins": These items allow you to set the margins (in 72nds/inch) when printing.

"Session…"

Using the "Session" Preferences panel

This dialog allows you to control the configuration of the session which is currently on top.

"Only one session per document": Setting this option causes dataComet to leave the document file open, so that double-clicking on it will bring the old session to the foreground and re-open it if it has been closed, rather than opening a brand new session. When this option is NOT selected dataComet closes the session document after getting the settings and macros from the document; in this case opening or double-clicking on the same document again will open a new, separate session window with the same host.

"Connect automatically": Open the connection automatically when the document is opened.

"Open session without terminal type negotiation": Some TCP/IP hosts (particularly terminal servers) may not negotiate terminal types correctly, or may not open a session by sending some data to dataComet; if this occurs, you cannot send keystrokes to the host, and the button bar is left grayed out. Setting this option will allow you to send characters to such a host.

"Require session close from host": When this option is selected and the user attempts to close a session without logging out first, the user will be presented with an alert noting that the session must be closed from the host. Note that choosing the Window menu "Abort session" command will still abort a session without presenting the dialog.

"Close window when session closes": Will close the window and its corresponding document automatically when your session is closed or aborted.

"Prompt before closing if session open": When this option is set, you will receive an alert requesting approval when you close the window and the session is still open.

"Reopen session automatically on failure": dataComet will try to re-open the session it automatically if it fails to open or is closed by an abnormal failure.

"Miniaturize window on application switch": When you switch from dataComet to another application the window will automatically shrink to a

small icon and expand after returning. (See the "Miniaturize" menu command.)

"Notify when new data arrives while in background": Sets the dataComet icon to "bounce" when dataComet is in the background and new data arrives for the session.

____ "lines in scrollback buffer (zero = no limit)": allows you to set the maximum number of lines to save in the emulator screen scrollback buffer.

____ "Tab threshold (zero = copy all spaces)": allows you to set the threshold for converting spaces into tabs when the Edit menu item "Table Mode for Copy and Save" is on.

____ "Session keepalive (in seconds, zero = off)": enables a session keepalive so that dataComet periodically sends a Telnet Timing Mark (or a NULL character for serial sessions) to the host. This feature helps keep sessions from being terminated when connecting to hosts that have a session-inactivity timeout. NOTE that some hosts with obsolete TCP/IP software absolutely must have a keepalive set in order to maintain a session! However, ISPs strongly disapprove of the use of keepalives, so this option is off by default.

"Prefer vertical cursor": The emulator cursor will normally be displayed as a vertical bar, and will shift to block or underline when in Insert mode. Usually the reverse is the case, with the vertical cursor used to indicate that the emulator is in Insert mode.

"Use block cursor": Allows you to change the emulator cursor from an underline to a block.

"Blink cursor": Determines whether the cursor will blink or stay on continuously.

"Don't Beep": Turns off the terminal bell.

"Edit window" items for controlling transfers to the session's .edit window:

"Delete Returns in session.edit automatically on download": If you download a file with the same name as the session with ".edit" appended, it will be added to the session's .edit window; this option allows you to have the Carriage Returns at the end of each line stripped out automatically.

"Add Returns to session.edit automatically on upload": Like the above, except that Carriage Returns will be added automatically to the end of the lines where the text was wrapped in the .edit window.

3.1. Dialogs

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dataComet documentation. (Rev. 2/20/2010)

This document has information on (select and use "Find..." to go to the section):

Using the "VT100" Preferences panel (ASCII)

This dialog allows you to control the configuration of the emulator for the session which is currently on top when it is an ASCII connection.

"Host menus and function keys": Allows you to select function key mappings. The "IBM 3270" and "IBM 5250 (AS/400)" options allow you to connect to an IBM EBCDIC host indirectly using an ASCII emulator, for example using a modem or through a UNIX machine running tn3270, and get menus and key mappings which send the equivalents of IBM function keys. A number of ASCII function key mappings are also provided for various ANSI/VT100 terminal variants; the names parallel the UNIX termcap or terminfo terminal entry names, e.g., "ncsa", "linux", "scoansi", "xterm", etc.

"Return key sends:", "Carriage Return", "Line Feed": If the box for CR is checked, return sends a CR; if the box for LF is checked, an LF will be sent. If both are checked, CR-LF is sent. (You can always send a Line Feed by pressing Control-Return.)

"Map ` to Escape": Applies to ASCII terminal emulation. Maps the '`' key to the ESCAPE key. (You can still send a '`' by pressing Control-'`'.)

"Map delete to Delete (v. BS)": Applies to ASCII terminal emulation. Makes the key at the top right of the keyboard (variously labeled "Backspace" and "Delete") send a Delete character rather than a Backspace. (You can still send a Backspace by pressing Control-Backspace.)

"Option is Meta Key": When the option key is down, metafy the character by sending an <ESCAPE> before sending the character. This is usually used with EMACS. The dataComet-Keyboard resource must be installed in the "Library/Keyboard Layouts/" file for this to work for all characters (otherwise E, I, N, U, and ` will misbehave, see the document "A3. dataComet Keyboard").

"Send vi commands to position cursor": Applies to ASCII terminal emulation when using the UNIX vi editor. This mode allows the cursor to be positioned more accurately and also sends fewer characters.

"XOFF Ctl-": Host output is held soon after you input this character rather than waiting for the host to hold output. "XON Ctl-": works the same way for "resume output". "KILL Ctl-": currently is not used.

"Size: Rows": & "Columns": You can use these fields to customize the size of the emulator. NOTE that you will have to configure your host to recognize any size other than 24 rows X 80 columns if the host does not accept Telnet window size negotiations. Only emulator sizes with less than 256 rows and total are less than 32000 characters are valid.

"Answerback:": The answerback message dataComet sends back to the host when it receives a Control-E from the host.

"Do CR-LF when LF received (newline mode)": Interpret linefeed characters sent from the host as newlines (carriage return-linefeeds).

"Do CR-LF when CR received": Add a linefeed character when a CR is received from the host.

"Wrap text when line overflows": Causes characters past the right margin to wrap down to a new line rather than being ignored.

"VT100-wrap (wrap at column 81)": Allows you to disable the VT100 "feature" (designated in termcap entries with "xn" for "Xanthippe glitch") which makes the cursor wait to wrap at the end-of-line (so if a character is placed in column 80, and then a linefeed character is received, only one linefeed is performed).

"Backspace wraps": Allows the cursor to wrap back to the end of the previous line when a BS is received. This is not standard VT100 behavior,

but works well when entering long command lines in UNIX.

"Use VT100 jump scrolling mode": Configures the ASCII emulators so that they will not update the screen immediately when the cursor goes above or below the scrolling area, but will wait until all the data from the host has been processed. This can speed up the display with some applications, since scrolling takes a lot of time.

"Do blink": You can use this for special cases in which you wish to disable the "Blink" attribute in a VT100 display.

"Do underscore": You can use this for special cases in which you wish to disable the "Underscore" attribute in a VT100 display.

"Log Erase": Logs lines which are partially erased in the scrollback buffer and session log.

"Update display promptly on clear": When this option is set, dataComet displays all data before it is cleared. Otherwise, it delays drawing until all processing of current host data is complete.

"Display full Apple character set": Sets the VT100 class emulators to display characters from 128 through 159 rather than interpreting them as 8-bit control codes--as they are in standard ANSI/VT220 terminals. (This option is useful for displaying Mac OS X host characters more faithfully.)

"Paste Pacing": options allow you to configure ASCII pastes to work reliably with your host in cases where the host is slow. If "Wait for character echo": is set, dataComet will wait for each character sent to be echoed before sending the next character. If you set "ticks/line":, dataComet will pause for that number of ticks (1/60ths of a second) before sending the next line; "ticks/char": pauses for the given number of ticks for each character.

Using the "3270" Preferences panel (IBM 3270)

This dialog allows you to control the configuration of the session which is currently on top when the connection is made using the 3270 emulator.

"IBM Terminal Type": "IBM 3270-2 (24 X 80)":, "IBM 3270-3 (32 X 80)":, "IBM 3270-4 (43 X 80)":, "IBM 3270-5 (27 X 132)":, "IBM 3270 Custom": Allows you to set screen sizes other than the standard 24 row by 80 column display, using the "Size: Rows": and ... . NOTE that not all applications will

use the larger display area.

"Use Extended Base Colors for 3279": Turns on Base Color mode for mapping attributes to color when the 3279 color emulator is used, so Intense characters are Red and Protected characters are Blue.

"Use IBM 5250 menus and function keys": Modifies menus and PF key mappings so you can easily use commands available on IBM AS/400 5250 terminal sessions, using the default host 3270 PF key mappings for 3270 <-> 5250 emulation.

"Disable fallback to 24 X 80 screen": Allows you to disable host-selected fallback to the 24 X 80 default screen size from larger screen sizes, preserving the contents of the scrollback buffer in cases where the default screen size is only temporarily reset and not actually used.

"Typeahead: allow input when System Busy": The Typeahead option allows you to set the emulator so it will discard all input when the SYS (system lock) light is on, as would a genuine IBM 3270 display. Thus, if typeahead is turned off, for a moment after the Enter key or a PF key is pressed, no input will be accepted from the keyboard, and all pending keyboard events will be discarded. If typeahead is on, keyboard input will be discarded only in the event of a "keyboard lock" condition, signified by the KBD light on the right of the screen, or if an error occurs in processing a command. (Note that when the Keyboard lock condition occurs, it can be cleared by either pushing the Reset button or executing the Reset menu command.)

The IBM 3270 video display terminal distinguishes between null characters and spaces, yet displays both as blank spaces. Because this distinction fails to deliver "what you see is what you get," we have two options for handling nulls:

"Send Imbedded 3270 Nulls as Blanks": Causes the emulator to substitute blanks for nulls which are in the middle of text within a field.

"Squeeze out blanks at end of field in Insert mode": Causes blanks to be treated like nulls so that blanks at the end of a field will be deleted as you insert text in the middle of the field.

"Shift whole field when deleting characters": Causes the whole field, rather than just the portion of the field on the current line, to shift to the left when a character is deleted.

"Use starting cursor position as margin when pasting": Causes pastes to move the cursor back to the original starting column on the next row rather than to the beginning of the next row.

"Erase EOF when pasting to clear previous contents": Clears the remainder of the current field before moving to the next line.

"Color"

Using the "Color" Preferences panel

The "Color" Preferences panel allows you to turn color mapping on and off and set the color map for a session. The VT100 and 3270 emulators allow you to associate character attributes (such as "bold font") with different foreground and background colors; you can also select the button "Host Selects Colors" with VT220 and PC-ANSI mode to use host ANSI color sequences to set the color independently of other character attributes and map bold characters to the Intense color to display 16-color PC-ANSI screens. (Note that you may need to do a screen refresh to see the correct color mapping on a screen.)

Clicking on a color brings up the standard Macintosh "Choose Color" dialog. Note that dataComet does not modify the Macintosh Color Palette, so the appearance of a color on the display may differ from the field displayed in the "Choose Color" dialog if you are only displaying 16 colors on your monitor. This is set in the Monitors Preferences Panel; this provides few colors into which to map your color choice in the Color Dialog into the existing 16 color Pallette. (Not modifying the Palette avoids nasty changes in the appearance of other applications when the Palette is changed.)

To simplify copying color settings from one session to another, you can Copy the settings displayed for one Color dialog and Paste them into the Color dialog for another session.

"Color mapping on": Use colors rather than black and white when displaying an emulator screen.

"Background Color Erase": On by default, so that the currently selected background color fills areas which are erased. Some applications may work better with this option off.

"Host selects colors": Let color control sequences received from the host determine the color used for characters in the emulator screen rather than selecting colors based on character attributes.

"… except Background": Lets you select background colors yourself, even

when Host selects colors is enabled.

"Use 16 colors": Allows you to select 16-color colormaps for the VTxxx terminals. NOTE that this disables support for double-high and double-wide characters.

"Show Extended map": Displays and allows you to modify the extended color range for host-selected PC-ANSI highlighted characters, and to modify the color mapping for Underlined attributes for VT100 attribute mapping.

"Default Colors": Resets the current color map to the default map for the selected terminal type and setting for "Host selects colors". (Holding the Shift key down while pressing this button lets you select the default 16-color PC-ANSI map when VT100 or VT220 emulation has been selected, or normal 8-color mapping when PC-ANSI emulation has been selected.)

"Keypad…"

Using the "Keypad" Preferences panel

"Set VT100/VT220 Keypad:" options:

"Automatic": The VT100 keypad configuration is controlled by the host application. Host application control sequences to change the keypad functions are ignored if the following options are used:

"Calculator": The keypad sends the characters associated with the labels in the "Set Keypad..." drawing, allowing you to exit PF key modes and send numeric keys. The arrow keys use the standard codes.

"Calculator-Alternate": The keypad sends numeric keys; the arrow keys send the special PF-Application arrow key codes so they will work correctly with applications which expect them.

"PF-Application": The keypad sends the VT100 codes associated with the Keypad Application mode. The arrow keys send special PF-Application codes.

"PF-Alternate": The keypad sends the VT100 codes associated with the Keypad Alternate Application mode, but the arrow keys use the standard codes.

"VT220 named FKeys sent without Shift key down": Usually the six function keys in the middle of the keyboard perform local Macintosh functions, and you need to hold down the Shift key to send the VT220 FKeys which are associated

with these keys. This option swaps these functions, so that Shift is required instead to perform the local Macintosh functions.

3270 keypad options:

The "Function 1", "Function 2", and "Function 3" keyboards provide convenient alternative keymappings for the keypad for interacting with IBM hosts.

Shared options:

"Switch Standard keyboard +/- keys to match picture": The Macintosh Standard and Extended keyboards have the '+' and '-' keys swapped. This setting allows you to remap the two keys so they're swapped back, producing the PF and other keys as they appear in the "Set Keypad..." pictures.

"Views…"

Using the "Views" Preferences dialog

"Show buttons at top of window": Show the buttons at the top of a session window. You can set these buttons to execute macros by using Command-Click to bring up the "Define Macros" dialog.

"Show status bar at top of window": Show button controls and session status indication at the top of an emulator window. You can set these the button controls by using Command-Click to bring up the "Define Macros" dialog.

"Show packets sent counter": Show the number of packets sent to the host.

"Show packets received counter": Show the number of packets received from the host.

"Show session timer at top of window": Maintain a session timer. This timer can be reset to zero using the '!Cr' macro.

"Show cursor-buttons at left of window": Displays numbers corresponding to a macro (the list is displayed by holding down the '?'/'M' indicator at the top left of an emulator window; this is visible when "Show status bar at top of window" is enabled). Clicking when the number is displayed will execute that macro (or a default function key). You can set these macros by using Command-Click to bring up the "Define Macros" dialog.

"Show horizontal scrollbar at bottom of window": Allows you to hide the horizontal scrollbar at the bottom of an emulator window.

"Show cursor position": Displays the emulator cursor position in the horizontal scrollbar display area (row followed by column number).

"Use Mouse position": When "Show cursor position" is enabled, this option allows you to display the emulator row and column position to which the mouse cursor points.

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dataComet documentation. (Rev. 6/15/10)

This document has information on (select and use "Find…" to go to the section):

Using Macros

dataComet allows you to record macros to perform functions such as moving the cursor, making a selection, or appending the selection to a file. Dialogs in the Macro menu allow you to paste in or enter a sequence of macro commands; macros can also be entered and executed in the .edit window. Pressing the "Shift-Enter" key while an edit window is the frontmost window causes the current line or selection to be executed as a macro (pressing the Enter key alone sends the selection as plain text).

You can execute the examples below in the frontmost emulator session by selecting them and pressing "Shift-Enter".

There are many other ways in which you can trigger dataComet macros:

* With key-combinations you enter on the keyboard (such as Control Option A, set using "Define macros…" in the Macro menu);

* With a mouse single- or double-click (set using "Set single-click macro…" or "Set double-click macro…");

* You can also define a macro to execute when a connection with a host is complete ("Set Connection macro…") or when the user closes the connection ("Set Close macro…");

* You can define macros as menu items in the "Macro" menu.

* Command-clicking on button controls brings up a dialog which allows you to rename the control and set it to execute a macro when clicked.

The Key Macro on/off switch is in the Macro menu; when macros are on, an M appears in a box on the top left hand side of the screen. When a key macro is currently executing, the M appears in reverse video; the reverse M also appears if keystrokes are pending execution in the key queue. If you wish to cancel the execution of a macro or pending keystrokes, use Command-'.'.

Macros…

Using the "Define Macros…" dialog

When the dialog for entering key macros comes up, you have three options: select a key by pressing it, select a macro button or menu by command-clicking on it, or show a list of macros currently associated with keys and buttons.

"Press the key-combination you want to remap…": When this prompt appears, you can press a key-combination (or command-click on a button or menu macro); the dialog will show you the name of the key, and will allow you to enter actions (text and commands) you want the key-combination to produce. If there is a key macro associated with that key, the actions associated with the key will be displayed, and the Delete button will be enabled.

Note that holding down the mouse button when you press the key-combination will identify the key as an "Alt-key," and such a macro will only be matched if the "ALT" state is set using the "!CA" command documented below (this allows you to switch keyboard configurations with a keystroke, and is used with library keymapping). When the "ALT" state is on, the boxed "M" which shows that key macros are on changes to an "m".

There are several check boxes in the dialog:

"Global": This check box shows whether a key macro is a global macro which can be used by all sessions (saved in the "Comet Default" document). Setting it on allows you to set a key macro as a global macro.

"Ignore Caps Lock": Ignore the caps lock key when matching key macros.

"Use Command Font": Use the "Comet Chicago" font, which displays common macro commands as buttons. If this option is off, the frontmost window's font is used. If you want to enter international characters, this option needs to be off.

You can modify the macro text by entering new text or using copy and paste with the Command-C and Command-V keys. Command-. cancels your modifications to the key macro. When you are finished, you must press the Set button if you want the changes to take effect. The program will then alert you if your entry has errors in the length of the codes. (PLEASE NOTE that the codes are not checked for validity until you execute a key macro by typing the key when you have quit the dialog and Key Macros are set on! Alerts will then inform

you of any errors.) If there is no error, the macros are updated immediately; there is no need to save the configuration to save the key macros in the document. If you decide not to change the text, you should press the Cancel button. You can then quit if you wish, or add, remove, or modify other keys.

Entering text and macro commands

Text which you enter in the key macro window can be interpreted as either plain text or commands. Individual characters stand for themselves--except for '!' & '\', which can be entered by using '!!' and '\\'. These two characters are special: '!' is used to introduce a command; '\' is used to enter a number, specified using three decimal digits, such as "\010". This numeric entry can be used either in place of a character, or to enter a decimal numeric value.

Ordinary text can be entered directly in the text-editing field of the dialog. Commands are entered as a '!' (exclamation point) followed by a pair of characters; the first character selects a class of action, and the second the particular type of this action. In IBM mode, the macro dialogs present buttons to perform input of all the IBM function keys. (PLEASE NOTE that dataComet does not automatically map the Return key to produce an "Enter," so you need to press the "Enter" button to send an Enter command to the host using a macro.)

Entering Escape and other ASCII control characters

ASCII control characters can be entered by pressing the Control key and the character ('a' through 'z', Space, '[', ']', '\', '@', '^', '_', or '?'). Note that you can enter the Escape control character (which sometimes appears in host application documentation as "^[" or <ESC>) by pressing the "esc" key or Control-[.

The action classes and associated characters available in both ASCII and the "IBM Keymapping" modes are as follows:

Moving the Host Cursor

Move to X-coordinate: (X) followed by a decimal number specifying the column number (0-255).

```
!X\000
```

Move to Y-coordinate: (Y) followed by a decimal number specifying the row number (0-32). The Y command always positions the cursor in column 0.

```
!Y\000
!Y\002!X\049  position the cursor on 50th column of the 3rd line
```

Move the cursor: (M), and a code:

```
!ML   Move the cursor to the left;
!MD   Move the cursor down;
!MU   Move the cursor up;
!MR   Move the cursor right.
```

The IBM 3270 also supports:

```
!M0   Move the cursor home;
!M<   Move the cursor backwards one field;
!M>   Move the cursor forward one field;
!MN   Do a Newline.
```

Finding a string or setting the selection

Search forward or backward for a string: ('!/>' or '!/<'), followed by a string terminated with another macro or null ASCII character.

```
!/>make!D\001
```

To make a selection: you must use four commands to set a selection range, each of which uses a number to specify the position on the screen numbered from 0; when all four codes have been received, the selection will be made. (Note also the "!Ea" macro above which selects the current screen only, and "!EA" which selects the screen and the entire scrollback buffer.)

```
      !S\000   selection start Y position, followed by the position
               number;
      !T\000   selection start X position, followed by the position
               number;
      !U\023   selection end Y position, followed by the position
               number;
      !V\080   selection end X position, followed by the position
               number.

      !S\000!T\000!U\002!V\080
```

Shift selection left: (<) followed by the number of spaces to shift the selection.

```
      !<\005
```

Shift selection right: (>) followed by the number of spaces to shift the selection.

```
      !>\080
```

Set selection length: (#) followed by the new length.

```
      !#\004

      ____________________________________________________

         Sending Function keys
      ____________________________________________________
```

!P\001 through !P\036 map to PF keys 1 through 36 for both ASCII and IBM emulations.

Send VT220 keys:

```
      !P\128      Find
      !P\129      Insert
      !P\130      Remove
      !P\131      Select
      !P\132      Previous Screen
      !P\133      Next Screen
```

Send 3270 PF action keys:

!P\000	Sys Request
!P1	PA1
!P2	PA2
!P3	PA3
!PC	Clear
!PE	Enter

Send 3270 local keys:

!A	Backspace blank (that's a space there!)
!AB	Backspace delete
!AD	Delete character to right (x->)
!AE	Erase to end of field
!AI	Toggle insert mode
!AR	Reset
!AS	Light pen select at the mouse position
!As	Light pen select at the cursor position
!AX	Erase Input
!AA	Display attribute bytes
!AC	Toggle Base Color attribute mapping

Setting 3270 extended attributes:

!aZ	Reset the color attribute to the default color
!aR	Red
!aG	Green
!aY	Yellow
!aB	Blue
!aP	Pink
!aT	Turquoise
!aW	White
!aX	Reset the character attribute to the default
!aA	Blink
!aS	Reverse
!aD	Underline

If a selection has been made, the selection is set;
otherwise succeeding characters are set to the attribute.

Controlling the emulator

Perform an emulator action: (C) followed by a code:

!CA Set the ALT (mousedown state) modifier bit for all keypresses. This allows you to have an Alternate macro set.
!Ca Set ALT off.
!CB Hide the Desktop from the user (for kiosk security).
!CC Close the session without a dialog.
!CE Show the .edit window.
!Ce Show the terminal emulator window.
!CD Show MacTCP smoothed round-trip time and time-out in the upper right corner of the screen.
!Cd Show MacTCP packets sent and received in the upper right corner of the screen. This is the default. The send counter becomes inverted when a resend is performed.
!CF Close the copyright/help textwindow.
!CH Don't update the display.
!CS Update the display as usual.
!Cs Display the mouse cursor position in the emulator window status bar.
!CI Draw each character promptly as it is processed (ASCII only).
!Ci Wait to update the screen: draw characters en masse.
!CM Set the top bit (meta-bit) of the next ASCII character.
!CN Makes a bell sound and sets the Apple Task menu to flash if dataComet is in the background.
!Cp Set an IBM PF key to page when pasting text (default is Enter).
!CR Restore line 25.
!CT Turn on cursor positioning using the mouse.
!Ct Turn off cursor positioning.
!CUstring\000
Interpret a string as a URL and open it.
!CV Turn on VT100 auto-print (i.e., print line on CR, LF, FF).
!Cv Turn off VT100 auto-print.
!CZ Toggle fast drawing mode (useful for library data entry checking).
!C>string\000

send a string, usually a VT100 parameter, directly
to the emulator.

Display Literal mode

!CL Display all characters sent and received as literals in the .edit window. In IBM mode, the streams are presented in an intelligible format; ASCII mode is presented raw. This mode is very useful for debugging or analyzing host application output to the emulator.
!Cl Display Telnet layer transmissions also.

Selecting National Character Sets

For VT100 emulators you can select a National Character Set which is mapped into ISO-Latin-1, or the Macintosh character set if a "Control Translation" menu mapping is selected (for this mapping to work correctly, you must select a Macintosh font such as Monaco).

The '!N\000' and '!n\000' macros set the G0 and G1 fonts, respectively. The character sets are selected using a numeric argument:

\000 US-ASCII
\001 ISO-Latin 1
\002 British
\003 Dutch
\004 Finnish
\005 French
\006 French Canadian
\007 German
\008 Italian
\009 Norwegian/Danish
\010 Spanish
\011 Swedish
\012 Swiss
\013 Portugese
\014 DEC Supplementary
\128 VT Graphic Symbols

Keymap command

!K\nnn Select the keymap (000-nnn).

\000 Automatic
\001 IBM 3270
\002 IBM 5250 (AS/400)
\003 ncsa (NCSA Telnet)
\004 linux
\005 scoansi
\006 xterm / VT420f
\007 386at (Intel SysV)
\008 wyse-60
\009 UNIX tn3270

Menu commands

Macros from !\000 to !\031 correspond to the menu items from left to right, with the items numbered from 1 (i.e., "!\<3-digit menunum>\<3-digit itemnum>"). Adding 64 to the item number sets the shift key for the menu item execution; adding 128 to the item number sets the Option key for the menu item execution; adding 160 to the item number sets the Shift-Option keys for the menu item execution; adding 192 to the item number disables it. (Macro recording provides an easy way to get an item's macro equivalent, since menu items selected are included in the macro.) Menu number 31 corresponds to the Finder menu at the far right (these items can only be disabled, not executed).

!\001\001 Execute the "File New" menu item to open a new session.
!\001\065 Execute the "File New" menu item to open a new text document.
!\001\129 Disable the "File New" menu item.
!\031\192 Disable the Finder menu.
!\031\193 Disable the "Hide Comet" Finder menu item.

See "Menu numbers (table)" below for a complete list of the available menus.

File and Print commands

Perform a file action: (F) followed by a code:

!FA Append the selection to a file.
!FB Append the selection to a file selected through a Standard Put File dialog.
!FD Print the window selection using dataComet's serial print routine.
!Fd Perform a print page eject.
!FF Bring the Finder or application launchpad to the front, closing sessions which are not configured to stay open on Mandarin sleep events.
!Ff Bring the Finder or application launchpad to the front without closing any sessions.
!FP Print the emulator screen using Apple's standard Print Manager routines.
!Fp Print the .edit window.
!Fq Print selection in the .edit window.
!FS Save the selection in a file; if a file has not been opened, a Put File dialog will be performed.
!FT Save the selection in a file; always present the Put File dialog.
!FV Toggle VT100 auto-print mode (the "Local Print" key).
!Fv Set VT100 auto-print off.

Opening Documents and Sessions:

Note that the following commands for opening files need to have path names specified with colons ':' rather than slashes '/':

!FOfilename\000
Open a document by name relative to dataComet's home application folder, e.g.,

!FO::Resources:Help:0.1. Shortcuts\000

!Fofilename\000 Open relative to the dataComet/ folder (in the user's ~/Documents/ folder)
!FWfilename\000 Open relative to the home Documents folder
!Fwfilename\000 Open relative to the dataComet/Documents/ folder

```
!FXfilename\000    Open relative to the home Sessions folder
!Fxfilename\000    Open relative to the dataComet/Sessions/
                   folder
```

File Transfer commands

The following commands work with IND$FILE and X-, Y-, and Z-Modem.

Perform a file transfer action: (f) followed by a code:

```
!fUfilename\000
      Upload a file using the default serial transfer method.
      When using IBM IND$FILE, this sets the local file name;
         the appropriate local option settings (below) and
         text of the IND$FILE command specifying the host
         file name and host options should follow (with an
         ENTER command to execute it).

!fFfoldername
      Set the download folder, e.g.,

         !fF:Downloads:\000

      IND$FILE options:

!fA   ASCII mode.
!fa   Binary mode.
!fC   CR/LF translation.
!fc   No CR/LF translation.
!fP   Protect local file.
!fp   Don't protect local file.
!f+   Append to local file.
!f-   Overwrite local file.

      Dump/Trace options:

!fT   Trace packets.
!ft   Don't trace packets.
!fD   Dump packets.
!fd   Don't dump packets.
```

Edit commands

Perform an editing action: (E) followed by a code:

!ES Use the standard text mode when copying the selection.
!ET Use the Table mode when copying the selection.

!EA Select the whole screen buffer or text.
!Ea Select the current emulator screen.
!EL Select the line where the mouse cursor is located.
!El Select the line where the emulator cursor is located.
!EW Select the word where the mouse cursor is located (the default double-click action).
!Ew Select the word where the emulator cursor is located

!EB Append the selection to the session's .edit window.
!Eb Append the selection to the session's .edit window without returns.
!EC Copy the selection to the Clipboard.
!Ec Copy the selection to the Clipboard without returns.

!EM Execute the selection range from the .edit window.
!Em Send the selection range from the .edit window to the host.
!EX Cut the selection range (works only with the .edit window).
!Ex Clear the Clipboard.
!EV Paste the selection into the emulator screen or the .edit window.

!B\000 Append the emulator screen to the logs & scrollback buffer.
!B\nnn Append a line (001-nnn) to the logs & scrollback buffer.

Window selection and output redirection commands

Bring a window to the front (w) followed by the number associated with it in the Window menu:

```
!w\001
```

Perform a window action (W) followed by a code:

```
!WSwindowname\000
```

Bring a window to the front; WS followed by the window name and terminated with another macro or null ASCII character.

```
!W>windowname\000
```

Make a window the output window, so that typed characters, PF keys, macro characters, and pastes will appear in the named window.

```
!W>\000
```

Make the emulator window the output window, so that typed characters, PF keys, macro characters, and pastes will appear in the emulator window, even though the .edit window is on top.

```
!W}
```

Reset the output window to the standard output.

NOTE: All keys and macros are routed to a session's .edit window if it is the front window.

Telnet commands

```
!tA   send Are You There;
!tB   send Telnet Break.
!tC   send Interrupt;
!tU   send Abort;
!tx   send Erase Character;
!tX   send Erase Line.
```

```
      !ta   Type IP address at cursor.

      !tM   disable Return key remapping
      !tm   allow Return key remapping (i.e., the following items)
      !tR   Return sends Carriage Return
      !tr   Return does not send Carriage Return
      !tL   Return sends Line Feed
      !tl   Return does not send Line Feed
      !tN   VT100 newline mode on
      !tn   VT100 newline mode off

      !tu   Type username at cursor
            The username set in the "Reconfigure Session…"
            dialog can be sent to the host using this command.

      ________________________________________________

         Scripting commands
      ________________________________________________


   Record user input as macro commands:  (R) followed by a code:

      !RB   begin recording;
      !RE   end recording and place the recording in the scrap for
            pasting into the .edit window or key macro dialog.

   Delay:  (D) followed by the number of seconds to wait specified as \nnn,
e.g. "!D\001".

   Delay Ticks:  (d) followed by the number of ticks (1/60 seconds) to wait
specified as \nnn, e.g. "!d\001".

   Loop:  (L) followed by the number of times to repeat the sequence of macro
commands which follows; this sequence must be terminated by an entry
containing "!L\000" (loop zero).  Using '\255' for the count will cause the
loop to continue until the Command-. "cancel" key is pressed.

      !L\001echo hello !L\000

   Loop break:  (l) followed by a level, \001 or \002.

      !l\001   break out of a match case.
      !l\002   break out of a match case and any enclosing Loop.
```

Query the user to enter a string: (Q) followed by P, followed by the prompt, followed by a "!Q". macro command to terminate the prompt string. The user's response will be sent out to the host. To enter a password, use "!QS" to replace the characters with dots. Both the query and the response must be under 256 characters.

```
!QPEnter ID:!QQ
```

Inform the user using the prompt line or an alert: (q) followed by 'a' if you wish an alert, or 'b' if you want to sound the bell; otherwise the prompt line in the button bar is set.

```
!qaThis is an alert!!\000
```

or

```
!qb!qzThis is a 25th line prompt!!\000
```

or, finally

```
!qz\000
```

will clear the prompt line.

Match String: Delay session macro processing until host output matches string: (Z) followed by a number indicating the number of seconds to wait before aborting; if the number is '\255', it waits forever if the string is not matched. This entry is followed by a list of characters to match, terminated by any non-character macro command (usually a Delay entry). (See "Scripted login example" below for an example of how you can use this macro command.)

Match case: Execute a macro when host output matches a string: (z) followed by a number indicating the number of seconds to wait before aborting (if the number is '\255', it continues waiting until a "!l\001" breaks out of the match case loop or a "!l\002" breaks out of a repeat loop containing the match case macro; Note: match case macros cannot contain a loop), AND THEN followed by a string terminated by a macro, ANOTHER !z\000 (the numeric argument is ignored for following cases), string, macro, ..., TERMINATED by a !Z\000. Processing of macro commands on the macro queue and new keystrokes is delayed until the match is found.

Triggers: If you use "!Z\001", the match case macro is interpreted as a trigger, and the processing of macro commands and new keystrokes continues while the match case waits for matches and handles them.

Here's an example of a match case macro:

```
sleep 1; cat shoplist
!z\030dog!D\000echo food >> shopitems
!z\255kitty!D\000echo litter >> shopitems
!z\255frog!D\000echo flies >> shopitems
echo End of list >> shopitems
!l\001!Z\000
```

produces

```
litter
food
litter
litter
food
flies
```

when shoplist is a file containing

```
dog kitty kitty dog frog kitty dog
```

Note that matching "flies" breaks out of the loop, and that the "cat" in "cat shoplist" is also matched!

Scripted login example with user prompt for password:

```
!Z\030login:!D\000myloginname!Z\030password:!D\000!QSEnter password:!QQ
```

Scripted login example with user prompts for userid and password:

```
!Z\030login:!D\000!QPEnter User ID:!QQ!Z\030password:!D\000!QSEnter
password:!QQ
```

Scripted login example with userid and password from configuration:

```
!Z\030ogin:!D\000!tu\013!Z\030assword:!D\000!tp\013
```

Menu numbers (table)

A list of the menu numbers which are used in macros
to select (or disable) menu items.

Menu #	Name	Submenu <- of ...
\000	dataComet-Secure	
\001	File	
\002	Edit	
\003	Window	
\004	Control	
\005	Macros	
\006	Telnet	
\007	Serial	
\008	ASCII	
\009	Transfer <-	File
\010	IBM	
\011	3270	
\012	Help	
\013	Cursor <-	Edit
\014	Send Telnet Command <-	Telnet
\015	Font <-	Control
\016	Size <-	Control
\017	Leading <-	Control
\018	Width <-	Control
\019	Bold Font <-	Control
\020	Control Font <-	Control
\021	Translation <-	Control
\022	National <-	Control
\023	Sessions <-	File
\024	5250	
\025	Documents <-	File
\026	Set Attributes <-	IBM
\027	SSH	
\028	New <-	File

4.1. macrocodes.h

```
/*
      This include file defines the internal result codes used in translating
      user events into actions for the terminal emulator.  Each result code
      is two bytes long, the first byte is the class type, and the second
      is an entry id for that type.
*/

/* token classes */

#define RSLT_MENUCLASS   0x1F    /* reserve up to RSLT_ASCI for menus */

#define RSLT_DISABLE     '-'     /* disable a token class, "--" indicates capability
                                    string follows */

#define RSLT_COMMENT     '"'     /* '!"\nnn' used for placing a comment in a macro,
                                    terminated by \000  */

#define RSLT_ASCI        ' '     /*  ascii character */
#define RSLT_ASCI_TRANS  '@'     /* '@' ascii character, translated before adding to
                                    the macro queue */
#define RSLT_LCAC        'A'     /*  IBM local action key */
#define RSLT_SETATTR     'a'     /* 'a' IBM set attributes */
#define RSLT_BUFFER      'B'     /* 'B' append to log, edit, screen buffer */
#define RSLT_EMC         'C'     /*  emulator control */
#define RSLT_DELAY       'D'     /* 'D' delay */
#define RSLT_DELAYTICKS  'd'     /* 'd' ticks delay */
#define RSLT_EDIT        'E'     /* 'E' EDIT action */
#define RSLT_FILE        'F'     /* 'F' FILE action */
#define RSLT_FILETRANS   'f'     /* 'f' FILE Transfer action */
#define RSLT_VARSET      'G'     /* 'G' "Get" variable -- set $\nnn from macro string
                                    -- "!$\nnn" puts */
#define RSLT_VARCOPY     'g'     /* 'g' "Get" variable -- set $\nnn from selection --
                                    "!$\nnn" puts */
   /* H, I, J */

#define RSLT_LOOP        'L'     /* 'L' LOOP with count argument */
#define RSLT_LOOPBREAK   'l'     /* 'l' LOOP BREAK with level argument */
#define RSLT_KEYMAP      'K'     /* 'k' select keymap # */
#define RSLT_MVCR        'M'     /* 'M' IBM cursor movement key */
#define RSLT_MENUNAME    'm'     /* 'm' execute named menu item in menu \nnn */
```

```
#define RSLT_VTG0        'N'     /* 'N' set (national) char set */
#define RSLT_VTG1        'n'     /* 'n' set (national) char set */

       /* O */

#define RSLT_PFKY        'P'     /* 'P' IBM program function key */
#define RSLT_PROCESS     'p'     /* 'p' actions on CSV variables/row selections */
#define RSLT_QUERY       'Q'     /* 'Q' do user query */
#define RSLT_INFORM      'q'     /* 'q' do user notification in 25th line */
#define RSLT_RECORD      'R'     /* 'R' record macro -- "watch me mode" */
#define RSLT_SEL1        'S'     /* 'S' selection Y start */
#define RSLT_SEL2        'T'     /* 'T' selection X start */
#define RSLT_SEL3        'U'     /* 'U' selection Y end */
#define RSLT_SEL4        'V'     /* 'V' selection X end */
#define RSLT_TELNET      't'     /* 't' Telnet commands */
#define RSLT_WINDNAME    'W'     /* 'W' window selection action */
#define RSLT_WIND        'w'     /* 'w' window selection action */
#define RSLT_XCURS       'X'     /* 'X' cursor movement to x loc */
#define RSLT_YCURS       'Y'     /* 'Y' cursor movement to y loc */
#define RSLT_MATCH       'Z'     /* 'Z' delay for input match failure; failure sets
                                    RSLT_TESTMACROFAIL */
#define RSLT_MATCHCASE   'z'     /* 'z' additional table entry input match */

#define RSLT_CSV         '¢'     /* Put CSV or other labelled string; failure sets
RSLT_TESTMACROFAIL */
#define RSLT_VAR         '$'     /* '$' -- Put \nnn global string */

#define RSLT_SEARCH           '/'  /* search for a string; failure sets
                                      RSLT_TESTMACROFAIL  */
#define RSLT_SELSHIFTLEFT     '<'  /* shift the selection #to the left */
#define RSLT_SELSHIFTRIGHT    '>'  /* shift the selection #to the right */
#define RSLT_SELLENGTH        '#'  /* set the selection length */


/* The item values for each class follow below */

/* strings are terminated with a '\000' */

/* RSLT_WINDNAME 'W' entries */

#define WIND_INPUT            '<'  /* make the following string naming a window the
                                      input window; failure sets RSLT_TESTMACROFAIL */
#define WIND_OUTPUT           '>'  /* make the following string naming a window the
                                      output window; failure sets RSLT_TESTMACROFAIL
                                      */
#define WIND_INPUT_RESET      '{'  /* revert to standard input */
#define WIND_OUTPUT_RESET     '}'  /* revert to standard output */
#define WIND_SELECT           'S'  /* make the following string naming a window the
                                       top window failure; failure sets
                                       RSLT_TESTMACROFAIL */


/* RSLT_ASCI ' ' entries */
```

```
/* the entry for the RSLT_ASCI type is the character to send */


/* RSLT_LCAC 'A' entries */

#define BACKSP_BLANK          ' '     /* space */
#define IBM_SHOWATTR          'A'     /* show IBM attribute characters in display */
#define BACKSP_DEL            'B'     /* B */
#define IBM_BASECOLOR         'C'     /* toggle IBM base color display */
#define DEL_CHAR              'D'
#define ERASE_EOF             'E'
#define INSRT                 'I'
#define RESET                 'R'
#define MOUSE_EXEC            'M'
#define IBM_SELECT            'S'
#define IBM_SELECTCURS        's'
#define INPUT_ERASE           'X'
#define INPUT_ERASEALL        'x'
#define IBM_DUPCHAR           'd'


/* RSLT_SETATTR 'a' entries -- set IBM attributes */

#define TIBMDEFAULTCOLOR      'Z'
#define TIBMRED               'R'
#define TIBMGREEN             'G'
#define TIBMYELLOW            'Y'
#define TIBMBLUE              'B'
#define TIBMPINK              'P'
#define TIBMTURQUOISE         'T'
#define TIBMWHITE             'W'

#define TIBMBACKDEFAULTCOLOR  'z'
#define TIBMBACKRED           'r'
#define TIBMBACKGREEN         'g'
#define TIBMBACKYELLOW        'y'
#define TIBMBACKBLUE          'b'
#define TIBMBACKPINK          'p'
#define TIBMBACKTURQUOISE     't'
#define TIBMBACKWHITE         'w'

#define TIBMDEFAULTHIGH       'X'
#define TIBMBLINK             'A'
#define TIBMREVERSE           'S'
#define TIBMUNDERSCORE        'D'

#define TIBMFONT              'F'
#define TIBMFONTOFF           'f'


/* RSLT_EMC 'C' entries */

#define EM_ALTMACRO           'A'     /* set the ALT (mousedown state) modifier bit */
#define EM_NORMMACRO          'a'     /* always set ALT off */
```

```
#define EM_SHIELD            'B'     /* expand a "blank" window to be a shield for
                                        kiosk */
#define EM_SHIELDPASS        'b'     /* set a password to reenable all items... */
#define EM_CLOSE             'C'     /* Close the emulator session */
#define EM_RTTSHOW           'D'     /* show RTT rather than packet counts */
#define EM_RTTHIDE           'd'     /* hide RTT */
#define EM_EDIT              'E'     /* show the textwindow */
#define EM_TERM              'e'     /* show the emulator */
#define EM_FILLCLOSE         'F'     /* close the copyright/help textwindow */
#define EM_HIDE              'H'     /* don't update the display */
#define EM_INDMODE           'I'     /* draw each char immediately as received */
#define EM_INDMODEOFF        'i'     /* don't draw as received */
#define EM_COLORFUDGE        'K'     /* use Index2Color to speed color mapping */
#define EM_COLORFUDGEOFF     'k'     /* don't */
#define EM_LITERAL           'L'     /* display literals in ASCII emulators */
#define EM_TELNETLITERAL     'l'     /* display telnet literals */
#define EM_METAFY            'M'     /* make ASCII key a meta-key (set top bit) */
#define EM_NOTIFY            'N'     /* post user notification if in background */
#define EM_IBMPASTEPF        'p'     /* set paste pf for 3270 to execute on wrap for
paging */
#define EM_RESTORE           'R'     /* restore line 25 */
#define EM_RESETTIMER        'r'     /* reset session timer */
#define EM_SHOW              'S'     /* update the display as usual */
#define EM_SHOWCURPOS        's'     /* display cursor position */
#define EM_TRACKON           'T'     /* cursor tracking on */
#define EM_TRACKOFF          't'     /* cursor tracking off */
#define EM_URL               'U'     /* execute URL string */
#define EM_VTAUTOPRINT       'V'     /* toggle automatic printing */
#define EM_VTAUTOPRINTOFF    'v'     /* automatic printing OFF */
#define EM_WAITCLICK         'W'     /* wait for a click result before handling other
macros */
#define EM_MACRO             'X'     /* execute selection as a macro */
#define EM_OUTPUT            '>'     /* pipe string into the emulator */


/* RSLT_LOOP 'L' entries*/

/* DO WHILE loop begin: the entry for this class is the
   number of times to repeat the loop as '\nnn'; a 0 will cause the loop to be
skipped, a 255 will cause the loop to continue until interrupted by a "Command-.".
*/


/* RSLT_DELAY 'D' entries */

/* the entry is the time in seconds you wish to delay processing tokens as '\nnn' */


/* RSLT_EDIT 'E' entries */

#define ED_SELALL            'A'
#define ED_SELSCREEN         'a'
#define ED_APPEND            'B'
#define ED_APPENDNOCR        'b'
```

```
#define ED_COPY               'C'
#define ED_COPYNOCR           'c'
#define ED_GOTO               'G'
#define ED_GOTOMOUSE          'g'
#define ED_LINESELECT         'L'
#define ED_LINESELECTCURS     'l'
#define ED_SENDMACRO          'M'
#define ED_SENDTEXT           'm'
#define ED_SELRESET           'R'
#define ED_STDMODE            'S'
#define ED_APPENDTABLE        's'
#define ED_TABLEMODE          'T'
#define ED_COPYTABLE          't'
#define ED_PASTE              'V'
#define ED_PASTENOTRANS       'v'
#define ED_WORDSELECT         'W'
#define ED_WORDSELECTCURS     'w'
#define ED_WORDSELECTWRAP     'Y'
#define ED_WORDSELECTCURSWRAP 'y'
#define ED_CUT                'X'
#define ED_CLEARSCRAP         'x'


/* RSLT_FILE 'F' entries */

#define RF_APPEND             'A'       /* append window selection to file with
                                           dialog; failure sets RSLT_TESTMACROFAIL */
#define RF_APPENDTO           'B'       /* append window selection to file with
                                           dialog; failure sets RSLT_TESTMACROFAIL */
#define RF_PRINTDRAFT         'D'
#define RF_PRINTPUSH          'd'
#define RF_FINDER             'f'
#define RF_FINDERCLOSE        'F'
#define RF_PRINTSCREEN        'P'
#define RF_PRINTTEXT          'p'
#define RF_PRINTTEXTSEL       'q'
#define RF_PRINTSCRAP         'Q'
#define RF_PRINTBUF           'R'
#define RF_PRINTASCBUF        'r'
#define RF_SAVE               'S'       /* save window selection to file;
                                           failure sets RSLT_TESTMACROFAIL */
#define RF_SAVEAS             'T'       /* save window selection to file with dialog;
                                           failure sets RSLT_TESTMACROFAIL */

#define RF_PRINTVT            'V'

   // select volume and open file commands are below
   // open a file using the following string naming a file

#define RF_OPENHELP        'H'          /* open document by name using the dataComet
                                           "Help" folder in application bundle */
#define RF_NAME            'N'          /* open document by name using macro default
folder */
#define RF_OPENAPPVOL      'O'          /* open document in Application folder */
#define RF_OPENPREFS       'o'          /* open document in User's Preferences folder
```

```
*/
#define RF_OPENDOC         'W'          /* open document in user's dataComet
                                           applicationfolder "Documents" folder */
#define RF_OPENDOCPREFS    'w'          /* open document in user's "dataComet
                                           Preferences/Documents" folder */
#define RF_OPENSESS        'X'          /* open document in user's dataComet
                                           application folder "Sessions" folder */
#define RF_OPENSESSPREFS   'x'          /* open document in user's "dataComet
                                           Preferences/Sessions" folder */
#define RF_SETVOL          'Y'          /* set default volume for macro command file
                                           opens to decimal numeric volume # */
#define RF_SETDIR          'y'          /* set default directory for macro command
                                           file opens to decimal numeric volume # */
#define RF_OPENUSERDIR     'U'          /* open file in user home folder */
#define RF_SETUSERDIR      'u'          /* set macro default folder to user directory
                                           to use for subsequent opens */
#define RF_SETVOLSTRING    'v'          /* set macro default folder to string
                                           following command */

#define RF_CSVLOAD         '¢'          /* load CSV data file  (US: Option-4) failure;
                                           failure sets RSLT_TESTMACROFAIL */
#define RF_CSVSEPARATOR    ','          /* set the field separator to be used when
                                           loading CSV tables; default is ',' */

   // Use RSLT_CSV !¢\nnn to put values


/* RSLT_CSV '¢' entries */

// Send data item entries are in the form !¢\nnn where:
//           \000 sends the name of the file loaded
//           \nnn ... are the strings loaded, by position

/* RSLT_PROCESS !p entries */

#define RSLT_CSVNEXTROW       '+'       /* select next row of CSV values */
#define RSLT_CSVPREVROW       '-'       /* select previous row of CSV values */
#define RSLT_CSVFIRSTROW      '1'       /* select first row of CSV values */
#define RSLT_CSVLASTROW       '$'       /* select last row of CSV values */
#define RSLT_CSVENDBREAKLOOP  'e'       /* test used after !p+ ; if end of values,
                                           cancel enclosing loop */
#define RSLT_CSVENDCANCEL     '.'       /* test used after !p+ ; if end of values,
                                           cancel all remaining macros */
#define RSLT_TESTMACROFAIL    '?'       /* test whether a macro command, e.g., file
                                           open or match string, has failed, and
                                           aborts the macros currently executing for
                                           this session if true
                                           Can be followed by a string, in which case
                                           a Cancel Macro query will be performed
                                           using the string */
#define RSLT_MACROFAILRESET   '/'       /* reset RSLT_TESTMACROFAIL macro command
                                           failure flags */
```

```
/* RSLT_FILETRANS 'f' entries */

/* args < 32 are run_zmodem = emdp->zmodem args */

#define FT_folder       'F'
#define FT_upload       'U'
#define FT_abort        'x'

#define FT_ASCII        'A'
#define FT_binary       'a'
#define FT_CRLF         'C'
#define FT_noCRLF       'c'
#define FT_protect      'P'
#define FT_overwrite    'p'
#define FT_append       '+'
#define FT_noappend     '-'

#define FT_trace        'T'
#define FT_notrace      't'
#define FT_dump         'D'
#define FT_nodump       'd'


/* RSLT_MVCR 'M' entries (IBM cursor motion) */

#define HOME            '0'
#define BACK_TAB        '<'
#define TAB_FWD         '>'
#define DOWN_ARROW      'D'
#define LEFT_ARROW      'L'
#define NEW_LINE        'N'
#define RIGHT_ARROW     'R'
#define UP_ARROW        'U'


/* RSLT_PFKY 'P' entries (IBM AND VT220 Program Function keys) */

#define IBMSYSREQ      \00

#define PF1            \001
#define PF2            \002
#define PF3            \003
#define PF4            \004
#define PF5            \005
#define PF6            \006
#define PF7            \007
#define PF8            \008
#define PF9            \009
#define PF10           \010
#define PF11           \011
#define PF12           \012
#define PF13           \013
#define PF14           \014
#define PF15           \015
```

```
#define PF16           \016
#define PF17           \017
#define PF18           \018
#define PF19           \019
#define PF20           \020
#define PF21           \021
#define PF22           \022
#define PF23           \023
#define PF24           \024
#define PF25           \025
#define PF26           \026
#define PF27           \027
#define PF28           \028
#define PF29           \029
#define PF30           \030
#define PF31           \031
#define PF32           \032
#define PF33           \033
#define PF34           \034
#define PF35           \035
#define PF36           \036

#define PF37           \037
#define PF38           \038
#define PF39           \039
#define PF40           \040
#define PF41           \041
#define PF42           \042
#define PF43           \043
#define PF44           \044
#define PF45           \045
#define PF46           \046
#define PF47           \047
#define PF48           \048

#define PA1            \049
#define PA2            \050
#define PA3            \051
#define IBMATTN        \065
#define CLEAR          \067
#define IBMDETECT      \068
#define ENTER          \069

#define PFSHIFT        \085
#define PFDUBSHIFT     \087

#define ASPF1          \096   /* 5250 PF keys */
#define ASPF2          \097
#define ASPF3          \098
#define ASPF4          \099
#define ASPF5          \100
#define ASPF6          \101
#define ASPF7          \102
#define ASPF8          \103
#define ASPF9          \104
```

```
#define ASPF10         \105
#define ASPF11         \106
#define ASPF12         \107

#define VTFIND         \128
#define VTINSERTHERE   \129
#define VTREMOVE       \130
#define VTSELECT       \131
#define VTPREVSCREEN   \132
#define VTNEXTSCREEN   \133

#define VTPF1          \134
#define VTPF2          \135
#define VTPF3          \136
#define VTPF4          \137


/* the entry for the RSLT_YCURS type is the desired row numbered from 0 as \nnn */

/* the entry for the RSLT_XCURS type is the desired column numbered from 0 as \nnn */


/* RSLT_QUERY 'Q' entries -- any two RSLT_QUERY entries bracket the prompt */

#define QUERY_BEEP           'b'
#define QUERY                'Q'
#define QUERY_END            'E'
#define QUERY_CR             'R'
#define QUERY_SILENT         'S'
#define QUERY_MACROCANCEL    'M'        /* cancel macro if Cancel pressed */


/* RSLT_INFORM "!q" entries -- terminated by \000 or another macro command; empty
string resets 25th line */
#define INFORM_BEEP       'b'

/* RSLT_RECORD 'R' entries*/

#define RECORD_ALLDATA       'A'
#define RECORD_NODATA        'a'
#define RECORD_BEGIN         'B'
#define RECORD_END           'E'
#define RECORD_PAUSE         'P'
#define RECORD_IBMALLDATA    'I'
#define RECORD_IBMNODATA     'i'


/* the entry for the RSLT_SEL actions is the desired location numbered from 0 as \nnn
*/


/* RSLT_TELNET 't' entries */

#define TNMYOUTHERE          'A'
```

```
#define TNMBREAK            'B'
#define TNMINTERRUPT        'C'
#define TNMABORT            'U'
#define TNMERASECHAR        'x'
#define TNMERASELINE        'X'

#define TNMCRNOMAPON        'M'
#define TNMCRNOMAPOFF       'm'
#define TNMCRTOLFON         'L'
#define TNMCRTOLFOFF        'l'
#define TNMVTNEWLINEON      'N'
#define TNMVTNEWLINEOFF     'n'
#define TNMCRTOCRON         'R'
#define TNMCRTOCROFF        'r'

#define TNMSENDADDR         'a'     /* type telnet address */
#define TNMSENDPASS         'p'     /* type password */
#define TNMSENDUSERNAME     'u'     /* type username */
```

---

dataComet documentation. (Rev. 1/27/08)

This document has information on (select and use "Find..." to go to the section):

Using AppleScript with dataComet

---

dataComet supports AppleScript commands which allow the user to control dataComet through scripts. All dataComet macro functions are accessible through the "execute" event, which submits a macro string to dataComet for execution by the target window.

Currently AppleScript recording is not supported by dataComet. You can, however, record a dataComet macro using "Record macro..." and then use the results in an execute command. Note that '\' characters in the macro commands must be doubled ("\\") in order to prevent your AppleScript Script Editor application from interpreting them as special characters.

If you want to your script to cause dataComet to quit, use the AppleScript "quit" command rather than a dataComet macro, so that dataComet can handle the Quit case properly by returning a value to the calling script indicating the command has been completed prior to actually executing the Quit command.

See "Sample AppleScript" in the Extras folder for an example script which opens a session with a UNIX host, executes a command, copies the command output, and closes the window. This example includes a number of useful

script routines.

```
      ------------------------------------------------

            Sample AppleScript Copy and Paste
      ------------------------------------------------

         global copyresult

         set copyresult to ""

         tell application "dataComet"

            execute "!WSYourWindowName\\000!Ce"
            -- Select a window by name;
            -- "!Ce" guarantees the emulator is in front,
            -- rather than the session's .edit window.

            execute "!S\\000!T\\000!U\\003!V\\000"
            -- Select the first 3 lines in the emulator screen.

            copy

         end tell

         set copyresult to the result
         -- copy the result of the dataComet copy;
         -- NOTE:  this must be immediately after the "copy" command
         -- in the "tell" statement to work correctly in the
         -- background!

         doedit(copyresult)

         return

         -- paste text into a new Scriptable Text Editor window

         on doedit(edittext)
            tell application "Scriptable Text Editor"
                  activate
                  set the clipboard to edittext
                  make window
                  paste
            end tell
         end doedit
      ------------------------------------------------
```

The AppleScript dataComet "copy" command waits for up to 45 seconds for dataComet macros executing in the frontmost session to be completed before copying the window selection to try to guarantee that select/copy macro scripts will work smoothly. NOTE that during this wait all applications on your Macintosh will have to wait for the loop to complete; if you're using a complicated macro to display and select text, it's best to check whether the "status" of a session contains "Executing" before performing a copy; this way you can be absolutely certain that complex selection macros will copy the selection you really want. (See "Sample AppleScript" for an example using the "status" command.)

More sample script snippets which might be useful...

```
-------------------------------------------------

   -- note that some Applescript variables may need to be
   -- coerced to "text"; otherwise it will abort the script
   -- with the error message "incorrect data type"

      send (thisorderedlist as text)

   -- This is a sample prompt line.
   -- Note that in an "execute" command you need to use
   -- a "!!" to sends a "!" to the host.

      execute "!qzThis is a 25th line prompt!!!qz"

   -- This clears the prompt line.

      execute "!qz!qz"

   -- uploadtext(copyresult, "uploadtext.txt")
   -- uploads an  AppleScript text object via a UNIX cat
   -- command.
   -- Note that 8-bit characters won't pass unless the host
   -- is set to read them (see "UNIX connections" in
   -- "1. Emulators").

      on uploadtext(thetext, filename)
            tell application "dataComet"
                  send "cat >" & filename & " <<'###EOF###'" & return
                  send thetext
                  send return & "'###EOF###'" & return
            end tell
      end cat
-------------------------------------------------
```

Executing an AppleScript

Save the script as an "Application" with "Never show startup screen" checked. To easily execute the script from dataComet, first place the script (called, say, "PrintBarcode") in the System "Apple Menu Items" folder. You can then set a dataComet button or key to execute a dataComet macro of the form "!m\000\127\127PrintBarcode\000".

---

dataComet's AppleScript Suites

Required Suite

Events that every application should support

---

open: Open the specified object(s)

open alias -- list of objects to open

print: Print the specified object(s)

print alias -- list of objects to print

quit: Quit application

quit

run: Sent to an application when it is double-clicked

run

```
_____________________________________________

   URL Suite

   Standard Suite for Uniform Resource Locators

_____________________________________________

   geturl: opens a Telnet connection specified by a URL

      geturl  string -- a Telnet URL
      Result:  small integer -- result code

_____________________________________________

   dataComet Custom Suite

   Suite of AppleEvents for interfacing to dataComet

_____________________________________________

   targetwindow: sets the window to use as a target

         targetwindow string  -- optional window name,
                              -- default front
         Result:   small integer  -- result code

      If the targetwindow is not specified in a script,
      the frontmost window is used as the target for
      the following commands.

      You can use the argument "frontwindow" to
      reset the target window for a script to whichever
      window happens to be frontmost.

   status: returns status for the target window

      status
      Result:  string -- text description of status

   send: sends text to the target window

      send string -- text to send
      Result:  small integer -- result code
```

```
execute: executes a string as a dataComet macro

   execute string -- a dataComet macro
   Result:  small integer -- result code

cut: cuts the selection in the target window

   cut
   Result:  string -- the cut text

copy: copies the selection in the target window

   copy string -- optional string overrides selection
   Result:  string -- copied text

paste: pastes into the target window at the cursor
       position

   paste string -- optional string sets clipboard
                -- before paste
   Result:  small integer -- result code
```

"status" report format

The status inquiry returns a string containing a list of tab-delimited strings which can help in monitoring the status of the frontmost session. The string may contain the following names and status indications: "WindowName LineCount CharCount SessionType TermType NewData ConnectionStatus 3270Status MacroStatus". You can use the MacroStatus returned by the "status" call to synchronize scripts by using a '!Z' or '!z' macro at the end of an "execute" call to guarantee that the host has sent an indication that its output is complete (this is application-dependent, since you must rely how the host application draws its screens).

E.g., you might receive the following status reports:

```
   "\"fedworld.gov\"    857   68560  Telnet     ANSI.SYS    NewData
Closed"
```

or

```
      "\"Scratch Pad\"     22    186   EditOnly".
```

```
_____________________________________________

   WindowName:        Window name:

      ".edit" will be appended if a session's .edit window
       is in front.

   LineCount:         Count of lines in window

   CharCount:         Count of characters in window

   SessionType:       Session type:

      "EditOnly"
      "Telnet"
      "Serial"

   TermType:          Session terminal type:

      "VT100"
      "VT102"
      "VT220"
      "H19"
      "ANSI.SYS"
      "IBM-3278-"

   NewData:           Session has received new data:

      ""
      "NoData"
      "NewData"

   ConnectionStatus:  Session connection status:

      ""
      "Opening"
      "Connected"
      "Closing"
      "Closed"

  3270Status:         Session status for IBM 3270 session:

      ""
      "Running"
      "MORE"
```

"VM Read"
"CP Read",
"Holding"

MacroStatus: Macro execution status

"Waiting"
"Executing"

---

6. File Transfer

This document has information on (select and use "Find..." to go to the section):

File transfer overview

The folder in which the session document is located is the default folder for up- and down-loading, unless "Comet Default" is the document being used, in which case the default download folder is the application's home directory. To switch folders you can use the File menu commands "Set download directory" or "Type file name at cursor" (the latter also inserts a file name at the cursor position). These commands use the standard file interface. When you create a new file by saving text or downloading a file, the file is set by default to be a dataComet document; you can cause files to be saved with a different document type by using the "Set default file

type..." dialog before you download the file. Alternatively, when SCP, IND$FILE, or Z-Modem downloads are performed, the type may be set using MacBinary or BinHex document information, or Internet Config may be used to map file extensions to a document creator.

When files are downloaded, dataComet checks the file name, and processes filenames with certain suffixes in special ways. (The suffix is the portion of a filename at the end which is preceded by a '.') These suffixes are:

".rename"

Offers the user a chance to rename the file.

".edit"

When you do a file download to a file with the same name as a session's .edit window, the downloaded text will be automatically appended to the window. Likewise, an upload using a session's .edit window name will cause dataComet to save the window before the upload is performed. (E.g., this is performed when a session is named "theory", and you download a file named "theory.edit".) You can automatically add or delete carriage returns in your text using options in the "Session" Preferences panel dialog, so that you can more conveniently use the TextEdit text wrapping on your Mac and have the paragraphs reformatted properly for your host.

AutoLaunch and automatic wrapping options in the "Transfer" Preferences panel provide an alternative to using the ".edit" feature when Z-Modem is used for file transfer.

When using Z-Modem, filenames ending in ".bin" and ".hqx" will be decoded using MacBinary and BinHex protocols, respectively.

AutoLaunch and Internet Config "File Mappings"

If Internet Config is installed and IC suffix-file mappings are enabled, binary mode will be selected automatically for both uploads and downloads according to the settings in the Internet Config "File Mappings"--i.e., the "Binary" setting and "Not for incoming"/"Not for outgoing" settings for that file type.

For IC downloads the document's file type and creator are set to those specified for the file's extension in the Internet Config "File Mappings" (e.g., ".doc" is set as an MSWord document; ".txt" is set as a

TextEdit document).

For IC uploads filenames have appropriate extensions (e.g., ".jpg") added automatically. This is off by default.

Unfortunately Internet Config is no longer fully supported under MacOS X. You can change the Internet Config "File Mappings" by launching Internet Explorer; Internet Explorer's "Preferences..." "Protocol Helpers" and "File Helpers" dialogs allows you to control these mappings.

If Internet Config is NOT installed, MacBinary and BinHex files are set to the type and creator specified in the original document. Text files are set to type 'TEXT', using the creator you're specified for this session in the File menu item "Set default file type...". Files containing a ".sit" extension will be opened using StuffIt Expander.

File transfer menu options

This list contains the file transfer options in the menu which are not duplicated exactly in the File transfer dialog (see below).

"Type file name at cursor…": Brings up a directory dialog box for you to select a file whose name you want to type on the dataComet screen. The download directory is set to the last directory you use.

"Download - Set directory…": Bring up a Macintosh Standard File dialog which allows you to choose a default download directory. (You need to select a file in the directory to get it to select a directory, otherwise the Standard File dialog opens the directory selected in the list… a "Set Directory" button will eventually be added to this dialog by dataComet to address this Standard File defect.)

"Upload…": Presents a dialog to select a document to upload using the default file transfer Protocol selected in the "File Transfer" dialog. If the current window is an edit window, the edit document is saved and uploaded automatically without a dialog. If Internet Config is installed, dataComet appends file suffixes appropriate for that document (e.g., TextEdit documents will have ".txt" appended). When using an IBM host and the IND$FILE protocol, the IND$FILE dialog will come up to allow you to select the host file name. If you are connected to an ASCII host, the "rz" or "rx" program is automatically invoked on the host, with appropriate parameters depending upon whether the file is a text or binary file. (To avoid automatic host program invocation, you can use "Option-Upload"; you will then need to type

the host command yourself).

Uploading folders: When Z-Modem is used, you can upload all the documents in a folder using the "Upload..." dialog by clicking on the "Transmit" button with the mouse (pressing the Return key when a document is selected will upload the document; for folders, however, pressing the Return key opens the folder rather than uploading it). To make maintaining remote directories quick and easy, Z-Modem "Newer" mode is set for folder uploads, so existing files are uploaded only if they are updated versions.

To guarantee that a file is uploaded even when it's not newer, you can upload only one document at a time; for single documents dataComet Z-Modem uploads always overwrite the destination file.

NOTE that after uploading a file to a host, you may need to change file permissions in order to make a file publically accessible if the file is part of a web page or is to be retrieved from an FTP server. (E.g., under UNIX the file permissions need to be set using "chmod 644 filename"; likewise new directories may need to be made readable using "chmod 755 directoryname". Other operating systems have similar security features, so if network file accesses fail check the permissions on the file or directory.)

"Download…": Accepts a download from the host using the default protocol.

"Compuserve QuickB…": NOT CURRENTLY SUPPORTED. Presents a dialog to perform a QuickB file transfer.

"X-Modem Transmit", "Receive": Performs an upload or download using X-Modem rather than the default protocol.

"Y-Modem Transmit", "Receive": Performs an upload or download using Y-Modem rather than the default protocol.

"Z-Modem Transmit", "Receive": Performs an upload or download using Z-Modem rather than the default protocol.

File transfer with IBM hosts using IND$FILE

The IND$FILE file transfer protocol can also be used to transfer files between the Macintosh and an IBM mainframe. You can enter the file transfer command directly in the host screen, or use the "IND$FILE" dialog to compose the command. You can bring up this dialog using the "Upload..." command (Command-U) in the File menu "Transfer" submenu.

Files may be transferred in either ASCII or Binary mode. In ASCII mode characters are translated between IBM's EBCDIC character encoding and ASCII character encoding by the mainframe, and spaces are stripped from the ends of lines by the host when a download to the Mac is performed.

One can also add "CRLF" to specify translation of Carriage Returns. The IBM host adds a Carriage Return and LineFeed to the end of each record; dataComet's IND$FILE will convert the CR/LF pairs to the Macintosh CR standard line terminator or vice-versa. You can specify automatic wrapping or unwrapping of lines for uploads and downloads, respectively, using the options in the "Transfer" Preferences panel, along with other encoding options such as MacBinary or BinHex.

Normally you will use either "ASCII CRLF" or plain Binary to perform a file transfer.

Using the "IND$FILE…" command dialog

This dialog helps you construct a valid host command to perform a file tranfer with an IBM host using the IND$FILE protocol.

The dialog will try to automatically construct a plausible target file name if you enter a name and then use the Tab key to enter a name field which is not yet set.

Pressing the "Get/Put" button or the Return key will execute the transfer (you may need to enter a Clear or PA2 to continue the transfer after the command is entered if the host goes into a HOLDING state). If you need to add options not available in the dialog, you can hold down the Shift key while OK'ing the dialog, and the command will be typed on the 3270 screen without being Entered.

"Folder…": Presents the standard file dialog to allow you to select an upload/download folder.

"Mac file…": This button brings up the standard file dialog so you can select a Macintosh file. If a host name is not yet specified, a plausible target host file name, transfer options, and file encoding (e.g., BinHex) will be automatically selected; you can change the name and Options if you wish.

"Host file": This field contains the name of the host file, which must be

in the form of a valid IBM file specification (normally, this file specification is of the form "NAME TYPE VOLUME" where the NAME and TYPE are limited to 8 letters, and the VOLUME specifies the logical disk to be used (by default the "A" drive).

Options:

"ASCII CRLF":	ASCII with CR/LF interpretation.
"ASCII":	ASCII without CR/LF interpretation.
"Binary CRLF":	Binary with CR/LF interpretation.
"Binary":	Binary.
"Overwrite":	Erase the target file before the transfer.
"Append":	Append the file being transferred to the target file.
"Protect":	Disallow over-writing of existing Mac files on download.
"Put to host":	Make a PUT command to upload a file from the Mac.
"Get from host":	Make a GET command to download a file to the Mac.

"Transfer…": Brings up the "Transfer" Preferences panel, which allows you to select general options controlling the transfer, for example, automatic text wrapping and unwrapping.

"IND$FILE…": Brings up the IND$FILE configuration dialog, which allows you to select more options for controlling the transfer.

The "IND$FILE" Preferences panel

"IND$FILE command": Enter an alternative command name if the host does not use "IND$FILE" to execute the file transfer.

"Host OS":	The Operating System on the IBM host determines the format and options applicable for the command string.
"TSO":	
"CICS":	
"VM/CMS":	

"Record Type": Selects host record type and length.
(Applies only to uploads to some OS types.)

"Default":
"Fixed":
"Variable":
"Undefined":
"Logical Length":
"Block Size":

"Allocation": Selects host file allocation variables.
(Applies only to uploads to some OS types.)

"Default":
"Tracks":
"Cylinders":
"AVBlock":
"Primary":
"Secondary":

File transfer with SSH hosts using SCP

The SCP (Secure Copy) file transfer protocol can be used to transfer files and folders over Secure Shell connections made with dataComet-Secure. To start a file transfer, you can use the "SCP…" dialog, which will help you construct an SCP command that will perform the transfer.

SCP may make error reports. These include "filename: not a regular file", which indicates that a directory specified as a target was skipped, and "ambiguous target" which indicates that multiple file or directory names were used in the SCP command in an amiguous fashion. Other reports, such as "protocol error:" "unexpected <newline>", "lost connection", or "expected control record", indicate that an internal error has occurred.

Using the "SCP…" command dialog

"Folder…": Selects a Mac folder as a source for uploads or target for downloads.

"Mac File…": This button brings up the standard file dialog so you can

select a Macintosh file. You can also enter a filename directly in the field; you can use '*' and '?" in the name as wild card characters to transfer multiple files.

"SCP Directory": Specifies a host directory, used for directory and sub-directory transfers.

"SCP File": Specifies the host file(s) to transfer (primarily for downloads).

"Copy sub-directories": Allows transfers of all files and directories in the selected directory.

NOTE that if you leave all the text fields empty, the contents of the folder (or directory) will be transferred, including sub-directories and their contents if "Copy sub-directories" is on.

Options: "Automatic", "Binary", "ASCII": Allows selection of file transfer types; files transferred in ASCII mode may be extensively reformatted, while files transferred using Binary mode are not modified in any way. Selections made in the "Transfer" Preferences panel controlling CR mapping, text wrapping, document launching, etc. may also apply, depending on the transfer mode.

"Overwrite":	Erase the target file before the transfer.
"Append":	Append the file being transferred to the target file.
"Protect":	Disallow over-writing of existing Mac files on download.
"Put to host":	Make an SCP command to do uploads from the Mac.
"Get from host":	Make an SCP command to do downloads to the Mac.

"Transfer…": Brings up the "Transfer" Preferences panel, which allows you to select general options controlling the transfer, for example, automatic text wrapping and unwrapping.

NOTE that only one SCP file transfer can be executed at a time.

The "SCP" Preferences panel

"OS": In the future these radio buttons will allow selecting a default SCP command for different operating systems. Currently only systems that allow excecution of the "UNIX": shell command are directly supported; "DOS":

is not. You may be able to use the Customized SCP command option described below to make an SCP file transfer.

"Default SCP command:": Shows the default SCP command. dataComet's implementation of SCP allows the SCP file transfers with the context of a normal terminal session, rather than requiring a separate SSH session to perform a download. Doing this requires that dataComet issue a command to the host, executing a separate shell, turning off interpretation of special characters, entering the "scp" command, and finally restoring the original terminal settings.

"Use RCP command": Use the "rcp" command to execute file transfers on the host command line, for cases where the host does not have SCP installed.

"Use customized SCP command:": allows you to issue a customized command if the default command does not work properly with a host.

"File modes":, "Directory modes": These arrays of check boxes allow you to set the permissions which will be set on files and/or folders which are uploaded to the host. By default, dataComet saves the host mode flags in the "last backup date" field in the file or folder's file description when they are downloaded. If the "File modes" or "Directory modes" check boxes are on, the selected modes are used; if they are turned off, the mode flags saved in the "last backup date" field will be sent to the host, allowing preservation of the UNIX file permissions.

Using Z-Modem

If you're doing file transfers, Z-Modem is the best protocol to use if it is available on your host. Here are some suggestions for using Z-Modem with dataComet with its default settings for file transfer...

To download text files using dataComet's Z-Modem, you can use

```
sz mytextfile
```

without specifying the '-a' to transmit text files, since by default newlines are automatically converted to Macintosh CR format (see below for the dialog option which allows you to change this setting).

To download a file which is a binary when this automatic text translation option is on, you can use

```
sz -b mybinaryfile
```

which will turn off the text translation option.

When the download has completed, dataComet will convert MacBinary (.bin) and BinHex files (.hqx), and then AutoLaunch the resulting document with the selected helper application.

You can use the "Upload..." menu item (Command-U) to select a file or folder to upload; the "rz" command will be automatically run on the host (you can hold down the Option key to suppress automatic "rz" command invocation).

If you use the "Upload..." command when a dataComet edit window is frontmost, the edit window will be saved and uploaded to the next frontmost host session. (Note that this is not the case if this is a session's .edit window, in which case the dialog is still displayed).

NOTE that only one Z-Modem or X-Modem file transfer can be executed at a time. You can still do work in other windows during a file transfer, including emulator sessions, but you cannot perform Z-Modem or X-Modem downloads using another session until the current file transfer is complete.

Using X-Modem

If you're using X-Modem, note that you download a file the file extension you append when prompted for a filename will be used to determine the filetype for transfer character mapping, CR conversion, and other options; if no suffix is appended to the filename (i.e., ".txt"), downloaded files will be transferred in binary mode.

The "ZModem" Preferences panel

"Timeout (seconds)": Number of seconds to wait before performing a retry (default 10).

"Maximum retries": Number of retries to perform before giving up on a file transfer (default 10).

"Receive Buffer size": Allows you to specify the size of the buffer; zero is the default, which automatically selects a size appropriate to the type of connection.

"Transmit:": The following options affect Uploads.

"Sub-packet length": Allows you to limit the size of sub-packets to help compensate for bad connections (default 1024). You should use a shorter sub-packet length if you find that transfers are performing numerous retries due to errors.

"Window limit": Allows you to set a limit on how many bytes are sent to the receiving end at one time (default 4096). Setting the Window limit to 0 (zero) may speed uploads; the default is 4096 because in some cases hosts may not be able to handle input processing quickly enough.

"ZCRCQ spacing": Allows you to require periodic ZAKS (acknowledgments that data has been received) from the receiving end (default 0, which implies that ZAKS are not required).

"Escape all control characters": Allows you to escape all control characters over connections which use them for connection control purposes. Try this if you find that connections fail mysteriously.

"X/Y-Modem":

"1K": "Off":, "Auto":, "CRC-1K": Selects the packet size (128 vs. 1024 bytes/packet). "CRC-1K" will attempt to negotiate 1K blocks with the host; "Auto" mode will accept 1K blocks if selected by the host YModem program.

"Batch": "Off":, "On":, "RR": Selects Y-Modem batch mode. "RR" is supposed to be compatible with the "Red Ryder" (a/k/a "White Knight") implementation of Y-Modem.

"Timeout": " 5":, "10":, "15": Selects a timeout value in seconds (default 10).

"Use CRC": Use a CRC (Cyclical Redundancy Check) to ensure that data is not garbled in transmission.

"Transfer" Preferences panel options

"Folder…": Selects a target folder for downloading. This is automatically saved as a string in the session document.

"Options…": Opens the dialog which allows you to select options for controlling X/Y/Z-Modem file transfers.

"IBM IND$FILE…": Opens the dialog which allows you to select options for controlling IBM IND$FILE transfers.

"Translate TEXT": Enables translation of characters from the Macintosh character set to host character set and vice versa, using the table selected for the session with the "Control Translation" menu. (Note: this option does not apply to IND$FILE transfers, since the host performs the ASCII translation.)

"ASCII Default":

"Z-Modem":, "X/Y-Modem":, "SCP": Selects a default protocol to use for file transfer.

"Options": Brings up a dialog which allows you to fine-tune X/Y/Z-Modem settings...

"Download": Options affecting downloads

"AutoReceive": Automatically receive Z-Modem downloads. Incoming data from the host is scanned for the Z-Modem string which prefaces a download, and automatically accepts the file, so that you don't need to execute a "Download…" menu item after entering the host command "sz filename".

"AutoLaunch": Automatically launch a downloaded document after performing MacBinary or BinHex decoding. The "File Mappings" settings from Internet Config are used if IC has been installed. E.g., if you download a correctly-named GIF file, "whatever.gif", the GIF image will automatically be displayed by JPEGView; if you download "index.html", the web page will be displayed by

your browser.

"AutoDecode": Allows you to disable automatic decoding of BinHex and MacBinary transfers.

"CR/LF -> CR": Automatically detect and convert text files to Macintosh format. DOS uses CR/LF pairs, and UNIX uses LF (LineFeed) characters to indicate the end of a line rather than a single CR (Carriage Return), which is used on the Mac to start a new line. This is on by default.

"UnWrap ¶": Automatically unwrap downloaded text files into Mac TEXT format (Carriage Returns appear only at the end of paragraphs; CRs or LFs denoting the end of lines are stripped).

"IC Suffix -> Type": Turns on Internet Config suffix mapping on downloads, so that file types are derived from the IC "File Mappings" settings, rather than the options below:

"TEXT App": The default helper application for TEXT files when IC is not used. This is '????' by default, so that the system will use the file suffix to determine the application to use.

"BIN App": The default helper application for BINARY files when IC is not used. This is '????' by default.

"BIN Type": The default file type for BINARY files when IC is not used. This is '????' by default.

IC file mappings supersede information in MacBinary and BinHex headers on downloads, allowing you to use an application different from the original document's creator. IC file mappings are also used to determine whether a file should be uploaded as a text or binary file.

"Upload": Options affecting uploads

"No Encoding": Disable file encoding when uploading.

"MacBinary": Use MacBinary protocol to encode files when uploading. This preserves a document as a Macintosh format file.

"BinHex": Use BinHex protocol when uploading. This preserves a document as a Macintosh format file; BinHex is less efficient than MacBinary, however,

files encoded using BinHex can be transferred over connections which can only transmit 7-bit characters, so it is still the standard for the distribution of binary files.

"Encode TEXT": Encodes 'TEXT' documents when uploading, in addition to other documents, which are always encoded when MacBinary or BinHex is selected.

"Wrap @": ____: Wraps outgoing TEXT at the specified column.

"DeTab": Expands tabs to spaces. The edit field allows you to select the tab stop to which a TAB will be expanded. (Currently applies only to IBM IND$FILE transfers.)

"IC Type -> Suffix": Toggles Internet Config suffix mapping on uploads, so that file suffixes are derived from the IC "File Mappings" type/creator settings, rather than:

"TEXT suffix": A suffix which is appended to uploaded TEXT files when IC is not used.

File transfer progress dialog

"Total": The total number of bytes in the file to be transferred.

"Done": The number of bytes transferred.

"Remaining": The number of bytes remaining to transfer.

"Bytes/sec": An estimate of the number of bytes per second transferred.

"Blocksize:": The Z-Modem block size (or in X-Modem, the block number).

"Errors": The number of errors seen transmitting the current packet.

"Time": Beneath this label the "Time Done" is displayed to show the total elapsed time for the file transfer. Further down the "Time Remaining" is displayed to provide an estimate of how much time remains before the transfer is completed.

Transfer labels:

"BinHex":	The file being transferred is a BinHex file, downloaded files will be decoded automatically.
"MacBinary I":	
"MacBinary II":	The file is a MacBinary file; downloaded files will be decoded automatically.
"CR -> NL":	The TEXT file being uploaded is being converted.
"NL -> CR":	The TEXT file being downloaded is being converted.
"Wrap":	The TEXT file being transferred is having its lines wrapped to or from Macintosh format.
"Launch":	The downloaded file will be opened automatically.

Z-Modem States:

"ZRINIT":	A file download is being negotiated.
"ZCHALLENGE":	Responding to file download request.
"ZRQINIT":	A file download is being requested.
"->ZNAK":	A ZNAK has been sent to request a packet resend.
"ZFILE error":	An error occurred transmitting a File header.
"ZSINIT ok":	File upload negotiation OK.
"ZSINIT error":	An error occurred negotiating an upload.
"ZFREECNT":	The space available on your disk was requested.
"hdr-ZNAK":	A ZNAK has been sent to request a header resend.
"hdr-ZFILE":	A File transfer Name/Header is being transmitted.
"hdr-ZEOF":	The End-Of-File for a transfer has been seen.
"hdr-ZSKIP":	The receiver wants to skip the file.
"hdr-ZDATA":	Data transmission is starting.
"data-TIMEOUT":	A timeout has occurred while waiting for data.
"data-ERROR":	An error occurred receiving a data packet.
"data-ZCRCW":	A data packet was received with a frame end and an ACK request.
"data-ZCRCQ":	A data packet was received with an ACK request.
"data-ZCRCG":	A data packet was received.
"data-ZCRCE":	A data packet was received with a frame end.
"hdr-TIMEOUT":	A timeout has occurred while trying to transmit a header.
"hdr-ERROR":	An error has occurred while trying to transmit a header.

6.1 ZMODEM command options - copied from UNIX man()

SZ(1) SZ(1)

NAME

sx, sb, sz - XMODEM, YMODEM, ZMODEM file send

SYNOPSIS

```
sz [-+abdefkLlNnopqTtuvyYZ] file ...
sb [-adfkqtuv] file ...
sx [-akqtuv] file
sz [-oqtv] -c COMMAND
sz [-oqtv] -i COMMAND
sz -T
```

DESCRIPTION

Sz uses the ZMODEM, YMODEM or XMODEM error correcting protocol to send one or more files over a dial-in serial port to a variety of programs running under PC-DOS, CP/M, Unix, VMS, and other operating systems.

Sz is not intended be called from cu(1) or other communications programs. Unix flavors of Omen Technology's Professional-YAM communications software are available for dial-out applications. (Reg.)

Sz sends one or more files with ZMODEM protocol.

ZMODEM greatly simplifies file transfers compared to XMODEM. In addition to a friendly user interface, ZMODEM provides Personal Computer and other users an efficient, accurate, and robust file transfer method.

ZMODEM provides complete END-TO-END data integrity between application programs. ZMODEM's 32 bit CRC catches errors that sneak into even the most advanced networks.

Advanced file management features include AutoDownload

(Automatic file Download initiated without user intervention), Display of individual and total file lengths and transmission time estimates, Crash Recovery, selective file transfers, and preservation of exact file date and length.

The -y option instructs the receiver to open the file for writing unconditionally. The -a option causes the receiver to convert Unix newlines to PC-DOS carriage returns and linefeeds.

"Sb" batch sends one or more files with YMODEM or ZMODEM protocol. The initial ZMODEM initialization is not sent. When requested by the receiver, sb supports YMODEM-g with "cbreak" tty mode, XON/XOFF flow control, and interrupt character set to CAN (^X). YMODEM-g (Professional-YAM g option) increases throughput over error free channels (direct connection, X.PC, etc.) by not acknowledging each transmitted sector.

On Unix systems, additional information about the file is transmitted. If the receiving program uses this information, the transmitted file length controls the exact number of bytes written to the output dataset, and the modify time and file mode are set accordingly.

"Sx" sends a single file with XMODEM or XMODEM-1k protocol (sometimes incorrectly called "ymodem"). The user must supply the file name to both sending and receiving programs.

Iff "sz" is invoked with $SHELL set and iff that variable contains the string rsh or rksh (restricted shell), "sz" operates in restricted mode. Restricted mode restricts pathnames to the current directory and PUBDIR (usually /usr/spool/uucppublic) and/or subdirectories thereof.

The fourth form sends a single COMMAND to a ZMODEM receiver for execution. "Sz" exits with the COMMAND return value. If COMMAND includes spaces or characters special to the shell, it must be quoted.

The fifth form sends a single COMMAND to a ZMODEM receiver for execution. "Sz" exits as soon as the receiver has correctly received the command, before it is executed.

The sixth form (sz -T) attempts to output all 256 code combinations to the terminal. In you are having difficulty sending files, this command lets you see which character codes are being eaten by the operating system.

If "sz" is invoked with stdout and stderr to different datasets, Verbose is set to 2, causing frame by frame progress reports to stderr. This may be disabled with the qq option.

The meanings of the available options are:

\ (backslash) (VMS) Force the next option letter to upper case.

+ Instruct the receiver to append transmitted data to an existing file (ZMODEM only).

a Convert NL characters in the transmitted file to CR/LF. This is done by the sender for XMODEM and YMODEM, by the receiver for ZMODEM.

b (ZMODEM) Binary override: transfer file without any translation.

c COMMAND
Send COMMAND to the receiver for execution, return with COMMAND's exit status.

d Change all instances of "." to "/" in the transmitted pathname. Thus, C.omenB0000 (which is unacceptable to MSDOS or CP/M) is transmitted as C/omenB0000. If the resultant filename has more than 8 characters in the stem, a "." is inserted to allow a total of eleven.

e Escape all control characters; normally XON, XOFF, DLE, CR-@-CR, and Ctrl-X are escaped.

f Send Full pathname. Normally directory prefixes are stripped from the transmitted filename.

i COMMAND
Send COMMAND to the receiver for execution, return Immediately upon the receiving program's successful recption of the command.

k (XMODEM/YMODEM) Send files using 1024 byte blocks rather than the default 128 byte blocks. 1024 byte packets speed file transfers at high bit rates. (ZMODEM streams the data for the best possible throughput.)

L N Use ZMODEM sub-packets of length N. A larger N (32 <= N <= 1024) gives slightly higher throughput, a smaller N speeds error recovery. The default is 128 below 300 baud, 256 above 300 baud, or 1024 above 2400 baud.

l N Wait for the receiver to acknowledge correct data every NN (32 <= N <= 1024) characters. This may be used to avoid network overrun when XOFF flow control is lacking.

n (ZMODEM) Send each file if destination file does not exist. Overwrite destination file if source file is newer than the destination file.

N (ZMODEM) Send each file if destination file does not exist. Overwrite destination file if source file is newer or longer than the destination file.

o (ZMODEM) Disable automatic selection of 32 bit CRC.

p (ZMODEM) Protect existing destination files by skipping transfer if the destination file exists.

q Quiet suppresses verbosity.

r (ZMODEM) Resume interrupted file transfer. If the source file is longer than the destination file, the transfer commences at the offset in the source file that equals the length of the destination file.

rr As above, but compares the files (the portion common to sender and reciever) before resuming the transfer.

t tim Change timeout to tim tenths of seconds.

u Unlink the file after successful transmission.

w N Limit the transmit window size to N bytes (ZMODEM).

v Verbose causes a list of file names to be appended to /tmp/szlog . More v's generate more output.

y Instruct a ZMODEM receiving program to overwrite any existing file with the same name.

Y Instruct a ZMODEM receiving program to overwrite any existing file with the same name, and to skip any source files that do have a file with the same pathname on the destination system.

Z Use ZMODEM file compression to speed file transfer.

EXAMPLES

ZMODEM File Transfer (Unix to DSZ/ZCOMM/Professional-YAM)

% sz -a *.c

This single command transfers all .c files in the current Unix directory with conversion (-a) to end of line conventions appropriate to the receiving environment. With ZMODEM AutoDownload enabled, Professional-YAM and ZCOMM will automatically recieve the files after performing a security check.

% sz -Yan *.c *.h

Send only the .c and .h files that exist on both systems, and are newer on the sending system than the corresponding version on the receiving system, converting Unix to DOS text format.

$ sz -\Yan file1.c file2.c file3.c foo.h baz.h (Reg.)(for VMS)

ZMODEM Command Download (Unix to Professional-YAM)

```
 cpszall:all
    sz -c "c:;cd /yam/dist"
    sz -ya $(YD)/*.me
    sz -yqb y*.exe
```

```
sz -c "cd /yam"
sz -i "!insms"
```

This Makefile fragment uses sz to issue commands to Professional-YAM to change current disk and directory. Next, sz transfers the .me files from the $YD directory, commanding the receiver to overwrite the old files and to convert from Unix end of line conventions to PC-DOS conventions. The third line transfers some .exe files. The fourth and fifth lines command Pro-YAM to change directory and execute a PC-DOS batch file insms . Since the batch file takes considerable time, the -i form is used to allow sz to exit immediately.

XMODEM File Transfer (Unix to Crosstalk)

```
% sx -a foo.c
ESC
rx foo.c
```

The above three commands transfer a single file from Unix to a PC and Crosstalk with sz translating Unix newlines to DOS CR/LF. This combination is much slower and far less reliable than ZMODEM.

ERROR MESSAGES

"Caught signal 99" indicates the program was not properly compiled, refer to "bibi(99)" in rbsb.c for details.

SEE ALSO

rz(omen), ZMODEM.DOC, YMODEM.DOC, Professional-YAM, crc(omen), sq(omen), todos(omen), tocpm(omen), tomac(omen), yam(omen)

Compile time options required for various operating systems are described in the source file.

VMS VERSION

The VMS version does not support wild cards. Because of VMS DCL, upper case option letters muse be represented by \ proceding the letter.

The current VMS version does not support XMODEM, XMO-

DEM-1k, or YMODEM.

VMS C Standard I/O and RMS may interact to modify the file contents.

FILES

/tmp/szlog stores debugging output (sz -v) (szlog on VMS).

TESTING FEATURE

The command "sz -T file" exercises the Attn sequence error recovery by commanding errors with unterminated packets. The receiving program should complain five times about binary data packets being too long. Each time "sz" is interrupted, it should send a ZDATA header followed by another defective packet. If the receiver does not detect five long data packets, the Attn sequence is not interrupting the sender, and the Myattn string in "sz.c" must be modified.

After 5 packets, "sz" stops the "transfer" and prints the total number of characters "sent" (Tcount). The difference between Tcount and 5120 represents the number of characters stored in various buffers when the Attn sequence is generated.

NOTES

Sz is not intended be called from cu(1) or other communications programs. Unix flavors of Omen Technology's Professional-YAM communications software are available for dial-out applications.

If a program that does not properly implement the specified file transfer protocol causes sb to "hang" the port after a failed transfer, either wait for sb to time out or keyboard a dozen Ctrl-X characters. Every reported instance of this problem has been corrected by using ZCOMM, Pro-YAM, DSZ, or other program with a correct implementation of the specified protocol.

Many programs claiming to support YMODEM only support XMODEM with 1k blocks, and they often don't get that quite right. XMODEM transfers add up to 127 garbage bytes per file. XMODEM-1k and YMODEM-1k transfers use 128 byte

blocks to avoid extra padding.

YMODEM programs use the file length transmitted at the beginning of the transfer to prune the file to the correct length; this may cause problems with source files that grow during the course of the transfer. This problem does not pertain to ZMODEM transfers, which preserve the exact file length unconditionally.

Most ZMODEM options are merely passed to the receiving program; some programs do not implement all of these options.

Circular buffering and a ZMODEM sliding window should be used when input is from pipes instead of acknowledging frames each 1024 bytes. If no files can be opened, "sz" sends a ZMODEM command to echo a suitable complaint; perhaps it should check for the presence of at least one accessible file before getting hot and bothered.

A few high speed modems have a firmware bug that drops characters when the direction of high speed transmissson is reversed. The environment variable ZNULLS may be used to specify the number of nulls to send before a ZDATA frame. Values of 101 for a 4.77 mHz PC and 124 for an AT are typical.

BUGS

On at least one BSD system, sz would abend it got within a few kilobytes of the end of file. Using the "-w 8192" flag fixed the problem. The real cause is unknown, perhaps a bug in the kernel TTY output routines.

The test mode leaves a zero length file on the receiving system.

NAME

rx, rb, rz - XMODEM, YMODEM, ZMODEM (Batch) file receive

SYNOPSIS

```
rz [- +abepqtuvy]
rb [- +abqtuvy]
rx [- abceqtuv] file
gz file ...
[-][v]rzCOMMAND
```

DESCRIPTION

This program uses error correcting protocols to receive files over a dial-in serial port from a variety of programs running under PC-DOS, CP/M, Unix, and other operating systems. It is invoked from a shell prompt manually, or automatically as a result of an "sz file ..." command given to the calling program.

Rz is not intended be called from cu(1), or other communications programs. Unix flavors of Omen Technology's Professional-YAM communications software are available for dial-out applications. (Reg.)

"Rz" (Receive ZMODEM) receives files with the ZMODEM batch protocol. Pathnames are supplied by the sending program, and directories are made if necessary (and possible). Normally, the "rz" command is automatically issued by the calling ZMODEM program, but some defective ZMODEM implementations may require starting rz the old fashioned way. Rz does not support ZMODEM Crash Recovery, compression, and other ZMODEM features. Unix flavors of Professional-YAM may be linked to "rz" and used in place of this program to support these ZMODEM features.

"Rb" receives file(s) with YMODEM, accepting either standard 128 byte sectors or 1024 byte sectors (YAM sb -k option). The user should determine when the 1024 byte block length actually improves throughput without causing lost data or even system crashes.

If True YMODEM (Omen Technology trademark) file information (file length, etc.) is received, the file length

controls the number of bytes written to the output dataset, and the modify time and file mode (iff non zero) are set accordingly.

If no True YMODEM file information is received, slashes in the pathname are changed to underscore, and any trailing period in the pathname is eliminated. This conversion is useful for files received from CP/M systems. With YMODEM, each file name is converted to lower case unless it contains one or more lower case letters.

"rx" receives a single file with XMODEM or XMODEM-1k protocol. The user should determine when the 1024 byte block length actually improves throughput without causing problems. The user must supply the file name to both sending and receiving programs. Up to 1023 garbage characters may be added to the received file.

"gz" is a shell script which calls sz to command Pro-YAM or ZCOMM to transmit the specified files. Pathnames used with gz must be escaped if they have special significance to the Unix shell.

EXAMPLE: gz "-a C:*.c D:*.h"

"rz" may be invoked as "rzCOMMAND" (with an optional leading - as generated by login(1)). For each received file, rz will pipe the file to ``COMMAND filename'' where filename is the name of the transmitted file with the file contents as standard input.

Each file transfer is acknowledged when COMMAND exits with 0 status. A non zero exit status terminates transfers.

A typical use for this form is rzrmail which calls rmail(1) to post mail to the user specified by the transmitted file name. For example, sending the file "caf" from a PC-DOS system to rzrmail on a Unix system would result in the contents of the DOS file "caf" being mailed to user "caf".

On some Unix systems, the login directory must contain a link to COMMAND as login sets SHELL=rsh which disallows absolute pathnames. If invoked with a leading ``v'', rz will report progress to /tmp/rzlog. The following entry works for Unix SYS III/V:

rzrmail::5:1::/bin:/usr/local/rzrmail

If the SHELL environment variable includes rsh or rksh (restricted shell), rz will not accept absolute pathnames or references to a parent directory, will not modify an existing file, and removes any files received in error.

If rz is invoked with stdout and stderr to different datasets, Verbose is set to 2, causing frame by frame progress reports to stderr. This may be disabled with the qq option.

The meanings of the available options are:

a Convert files to Unix conventions by stripping carriage returns and all characters beginning with the first Control Z (CP/M end of file).

b Binary (tell it like it is) file transfer override.

c Request 16 bit CRC. XMODEM file transfers default to 8 bit checksum. YMODEM and ZMODEM normally use 16 bit CRC.

D Output file data to /dev/null; for testing. (Unix only)

e Force sender to escape all control characters; normally XON, XOFF, DLE, CR-@-CR, and Ctrl-X are escaped.

p (ZMODEM) Protect: skip file if destination file exists.

q Quiet suppresses verbosity.

t tim Change timeout to tim tenths of seconds.

v Verbose causes a list of file names to be appended to /tmp/rzlog . More v's generate more output.

y Yes, clobber any existing files with the same name.

EXAMPLES

(Pro-YAM command)
<ALT-2>
Pro-YAM Command: sz *.h *.c
(This automatically invokes rz on the connected system.)

SEE ALSO

ZMODEM.DOC, YMODEM.DOC, Professional-YAM, crc(omen), sz(omen), usq(omen), undos(omen)

Compile time options required for various operating systems are described in the source file.

NOTES

ZMODEM's support of XOFF/XON flow control allows proper operation in many environments that do not support XMODEM uploads. Unfortunately, not all timesharing systems support input flow control. The TTY input buffering on some systems may not adequately buffer long blocks or streaming input at high speed. You should suspect this problem when you can't send data to the Unix system at high speeds using ZMODEM, but YMODEM-1k or XMODEM-1k, when YMODEM with 128 byte blocks works properly.

The DSZ or Pro-YAM zmodem l numeric parameter may be set to a value between 64 and 1024 to limit the burst length ("zmodem pl128"). Although this compromises ZMODEM's throughput, ZMODEM's superior reliability remains intact.

If a program that does not properly implement the specified file transfer protocol causes rz to "hang" the port after a failed transfer, either wait for rz to time out or keyboard a dozen Ctrl-X characters. Every reported instance of this problem has been corrected by using ZCOMM, Pro-YAM, DSZ, or other program with a correct implementation of the specified protocol.

Many programs claiming to support YMODEM only support XMODEM with 1k blocks, and they often don't get that quite right.

In the case of a few poorly designed microcomputers, sending serial data to a tty port at sustained high speeds has

been known to cause lockups, system halts, kernel panics, and occasional antisocial behaviour. This problem is not unique to rz; CRT terminals with block mode transmission and line noise have the same effect. When experimenting with high speed input to a system, consider rebooting the system if the file transfers are not successful, especially if the personality of the system appears altered.

The Unix "ulimit" parameter must be set high enough to permit large file transfers to Unix.

32 bit CRC code courtesy Gary S. Brown. Directory creation code from John Gilmore's PD TAR program.

BUGS

Rz is not intended be called from cu(1), or other communications programs. Unix flavors of Omen Technology's Professional-YAM communications software are available for dial-out applications.

Rz does not support ZMODEM Crash Recovery, compression, and other ZMODEM features. Unix flavors of Professional-YAM may be linked to "rz" to support these features.

Pathnames are restricted to 127 characters. In XMODEM single file mode, the pathname given on the command line is still processed as described above. The ASCII option's CR/LF to NL translation merely deletes CR's; undos(omen) performs a more intelligent translation.

VMS VERSION

The VMS version does not set the file time.

VMS C Standard I/O and RMS may interact to modify file contents unexpectedly.

The VMS version does not support invocation as "rzCOMMAND" .. The current VMS version does not support XMODEM, XMODEM-1k, or YMODEM.

According to the VMS documentation, the buffered input routine used on the VMS version of rz introduces a delay of up to one second for each protocol transaction. This delay may be significant for very short files. Removing the "#define BUFREAD" line from rz.c will eliminate this

delay at the expense of increased CPU utilization.

For high speed operation, try increasing the SYSGEN parameter TTY_TYPAHDSZ to 256.

The VMS version causes DCL to generate a random off the wall error message under some error conditions; this is a result of the incompatibility of the VMS "exit" function with the Unix/MSDOS standard.

ZMODEM CAPABILITIES

Rz supports incoming ZMODEM binary (-b), ASCII (-a), protect (-p), clobber (-y), and append (-+) requests. Other options sent by the sender are ignored. The default is protect (-p) and binary (-b).

The Unix versions support ZMODEM command execution.

FILES

/tmp/rzlog stores debugging output generated with -v option (rzlog on VMS).

A0. Problem solving

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dataComet documentation. (Rev. 1/27/08)

This document has information on (select and use "Find..." to go to the section):

General notes

Compatibility: dataComet-X and dataComet-Secure X are compatible with OS X 10.2 and later.

Menu-key equivalents are superseded by macro keys, but the menus are not corrected.

If you try to download a file to a locked disk, after the file transfer fails you will not be able to access that particular file again until you quit and restart dataComet; you will not be able to completely dismount the disk because the file will be "busy", although you can eject the disk, unlock it, and access other files.

Fonts

You will obtain best results in screen display with Comet-Fonts in the 9, 12, or 16 point sizes. Note that the Comet Fonts must be installed in the

Fonts folder under OS X before they will be available. These fonts allow display of special graphics characters used by VT100, PC-ANSI or SCO-ANSI, and IBM terminals.

Versions of dataComet after 10.0.2 include TrueType fonts so printing of these characters is fully supported under OS X; if you select smaller sizes other than 9, 12, or 16 for on-screen display, you get a TrueType rendition, which may not appear as legible.

"How do I select a separate print font size?"

---

dataComet allows you to select a print font and size different from your normal screen font and size: hold down the Option key while selecting the font from the "Control->Font->" submenu to select a separate print font; hold down the Option key while selecting the "Control->Size->" submenu to select a separate print font size. The separate print font and size will be marked with a '>' character in the submenu.

Function Keys don't work

Dashboard and Exposé, among other MacOS X applications, are configured to use some of the Function keys. You can free up the Function keys by opening the System Preferences "Dashboard & Exposé" panel and changing the keymappings. You can change other Function key remappings that might be in effect by opening the System Preferences "Keyboard & Mouse" panel and selecting "Keyboard Shortcuts".

---

dataComet crashes on launch

---

dataComet may crash when launched if the "Comet Default" document in the dataComet Preferences folder has become corrupted (in User Preferences/ dataComet Preferences under OS X or the System Folder/Preferences/dataComet Preferences under OS 9). Try deleting the document and launching again.

Pressing Return in ASCII emulators gets two responses

If you get two lines or skip the "password:" line on login after pressing Return, try changing the settings for "Return key sends:" "Carriage Return", "Line Feed" in the "Control Emulator" dialog. dataComet ASCII sessions default to the Telnet standard and sends CR-LF when return is pressed; sometimes hosts are configured to interpret BOTH as Carriage Returns, so you get two responses when you press Return once: one responding to the line you entered, and one responding to an "empty" line.

IBM mainframe QMF application shows "GDDM" error

If you get a message like this from your IBM mainframe host when attempting to use dataComet:

DSQ40079 GDDM error ADM0088 E QUERY VALUE ERROR: TOKEN '*', HDR X'001C8186', O FF X'1B'. Severity 8.

you can fix it by enabling the "Control Color..." dialog item "… except Background" so that dataComet will report that it doesn't offer background colors.

Funny characters appear in 3270 displays

If you see odd characters appearing in a 3270 display, you should try selecting the font again (preferably Comet Mona, a standard Macintosh font, or Comet ALA for NOTIS library system access).

You can also correct this by manually selecting the "Control Translation" setting; this is performed automatically when you select a font. Note, however, that no EBCDIC mappings are currently provided for "3270 {} Comet ISO-Latin-1", "3270 {} Comet DEC Multinational", or "3270 {} Comet PC-ANSI", so extended ASCII characters > 128 will not be translated correctly for these special non-Macintosh character sets.

Serial problems

These are often the most complex and difficult problems to resolve due to the variety of settings possible and the vagueness of the RS-232C port on most modems (which is interfaced to an RS-422 port on the Macintosh). This warning also applies if you're using a USB to serial adapter to make a serial connection.

If you're using hardware handshake, which is the preferred mode, make sure that you have a cable which supports hardware handshaking. If you are experiencing data loss or errors in transmission, try lowering the baud rate to 19,200 or 9600; if your cable is not of good quality and there is a lot of EMI present (Electro-Magnetic Interference) from other computers or electronic devices, the signals on the cable may be corrupted by the interference.

A1. dataComet & dataComet-Secure X Release Notes

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dataComet documentation. (Rev. 7/23/2012)

This document has information on (select and use "Find..." to go to the section):

A version of dataComet for OS X without encryption support built in is being made available as "dataComet X". dataComet, unlike dataComet-Secure, can be redistributed freely as shareware without complying with Federal Export controls which apply to dataComet-Secure. In other respects dataComet is identical to dataComet-Secure for Mac OS X.

Known Bugs in the current version

---

* dataComet fonts do not work with the OS X "Keyboard Viewer" Input menu option. (Under Snow Leopard they now work with the "Character Viewer" palette.)

* NOT bugs: The Console application reports errors when dataComet is launched stating "com.apple.fontd[114] FODBCheck: foRec->annexNumber != kInvalidAnnexNumber (0)", and the Font Book application lists a "Problems" with "'FOND' font association usability" when the Comet bitmap fonts are validated, stating "2 serious errors were found. Do not use these fonts." For some reason OS X since Leopard has been reporting errors with bitmap fonts which are not embedded along with TrueType fonts; however, these are the only problems reported, and the fonts continue to work fine.

10.2.2 -Secure 6/25/12
10.2.2 -X

Features:

* Added Code Signing security feature for dataComet and dataComet-Secure releases so that Mountain Lion's new GateKeeper system will recognize them as applications by an identified developer.

10.2.1r2 -Secure 1/17/12
10.2.1r2 -X

Bug Fixes:

* Fixed a bug which caused dataComet to crash when "Scrollback Buffering" was turned on and the scrollback buffer was cleared, or the emulator window was resized.

* dataComet should no longer crash if the dataComet "Preferences..." dialog panel is opened when no other windows are open.

* The estimate of the current speed of file transfers in the File Transfer Progress dialog is now more accurate.

10.2.1r1 -Secure 8/5/10
10.2.1r1 -X

Bug Fixes:

 * MAJOR BUG FIX: Creating a new terminal session will no longer cause dataComet to crash after the session connection is completed. This was occurring when the session had the Control menu Translation option set by default; the translation table resource file was being closed, resulting in the disappearance of the table from memory and failure when the emulator attempted to read from the translation table.

 * SSH2 connections will now open a session cleanly the first time through when the login name has not already been saved as the session's Username (which appears in the "Configure Terminal Session..." dialog). A preliminary dialog for entering the login user name before initiating SSH user authorization negotiations has been added to fix this problem.

 * The Command-R key combination once again executes the Window menu "Re-open Session" command, as in earlier versions of dataComet.

 * The font width setting in the "Control" menu "Width" menu is now ignored when printing.

 * Horizontal scrolling in edit windows using the mouse has been fixed so that no scrolling is performed when text in the edit window is displayed as wrapped text. This avoids a condition where the text could be scrolled to the right, but could not scrolled back to the left margin, requiring the window to be resized to display the text correctly.

 * The '¥" mark in the Window menu window list indicating that a terminal session is open is now set correctly on a consistent basis.

 * The File menu "Page Eject" command will now force printing and reset VT100 print streaming mode if a VT100 print stream has not received a VT100 "End print stream" control sequence from the host.

  10.2.1 -Secure 7/20/10
  10.2.1 -X

Bug Fixes:

 * Backspace now works with Undo, but does not set the Clipboard, so Paste will paste the text in the Clipboard from the previous Copy or Cut command.

 * The ".txt" suffix is now added automatically to text documents when they are first saved; performing a "Save as..." for an existing document with ".txt" added will delete the old edit document if the name is otherwise the same.

 * dataComet edit windows now have their window resources and dataComet 'usro' Finder -> dataComet link set promptly when they are first saved.

 * dataComet "session.edit" windows are now brought to the front when the document is opened from the Finder and the document is already open, rather than opening a new window.

  10.2.1b2 -Secure 7/6/10
  10.2.1b2 -X

Features:

 * Emulator window drawing routines have been modified so display of text files transmitted from the host will be processed 2-3X faster, with screen updates of the current page of large files occurring every second rather than every two seconds.

 * Added support for Keyboard Interactive mode in SSH, along with a dialog to perform the Challenge/Response interaction. SSH sessions are configured by default to use the session password as the response, and skip the dialog when there is only one Challenge from the host; this feature can be disabled using the "Use session password automatically" checkbox in the "Configure SSH" dialog (which is reached from the Configure Terminal Session dialog).

 * Added a Cancel Macro dialog to display a string and query the user whether she wishes to cancel the current macro, along with a "!QM" macro command to post the dialog. The "!p?" RSLT_TESTMACROFAIL macro command can now also have an optional string appended to it (ending with "!\000"), in which case failure will bring up the Cancel Macro dialog with the string used as a prompt.

 * Added more macro failure conditions which can be tested using the "!p?" macro command; these are documented in the dataComet Help document "4.1. macrocodes.h" as "sets RSLT_TESTMACROFAIL" conditions.

Bug Fixes:

 * Define Macro dialog:

- Button, Menu, and Connection macros are now updated reliably when the "Set" button is pressed; previously this worked correctly only once without closing and reopening the dialog.
- The correct button name and macro contents are displayed when sessions are switched using the popup menu.
- The text field in the dialog now displays "\000" for NUL characters in the macro, since only Comet Fonts contain a corresponding glyph for the "^@" NUL character.

* Macros:

- The "!L\nnn" loop command has been fixed so the correct number of loops are performed; existing macros containing loop commands may need to be modified to accomodate this change.
- Nested "!L\nnn" loops now work correctly.
- The "!Z\nnnSTRING\000" wait for string command now works when embedded in loops.

* The text cursor or selection range in the frontmost edit window should now be displayed (or hidden) correctly when the "Find..." dialog is being used when switching windows.

10.2.1b1 -Secure 5/24/10
10.2.1b1 -X

Features:

* dataComet now draws selected fonts with antialiasing disabled so bitmap fonts can be displayed. This feature is implemented using a list of fonts and sizes to be drawn with antialiasing disabled. This provides a huge improvement over earlier implementations of this feature in dataComet. (In the Beta implementation of this feature, this list is saved in a text document, "xFont List", which can be edited by the user by selecting the "View Font List" button in the Preferences Global Preferences panel.)

* dataComet now checks the databeast.com website and presents an alert to inform you when a new version is available. You can disable this feature in the dataComet "Preferences" "Global" panel. (This feature can also be completely disabled for site distributions by placing a "GetVersionDisabled" file in the dataComet application bundle's "Resources" folder.)

* Session and text document windows now have a popup menu at the top of the vertical scroll bar which contains a sorted list of open documents to make switching windows easier.

* Cloned, multiply launched, new Shell, and untitled windows now have a number appended to the Window title to help differentiate between these windows. When the configuration of a numbered Session window is saved, the document name in the "Save Configuration" dialog defaults to the original Session document name, so saving a numbered Session window will, by default, update the source Session document.

* The dataComet application, session document, and text document icons have been updated, along with the splash screen.

Session Enhancements:

* You can now set Telnet sessions so Telnet protocol interpretation is disabled, enabling dataComet to conduct raw TCP sessions. Telnet menu options selecting "7-bit characters"/"8-bit characters", "Send after return"/"Send characters promptly", "Local echo"/"Remote echo" are now saved in the session configuration and applied when a Telnet session is in raw mode.

* dataComet-Secure now includes support for sending stored passwords over unencrypted Telnet and Serial sessions, so you can log in to sessions automatically by incorporating the "!tu" "Send username" and "!tp" "Send password" macros in a Connection Macro. This "Macro" password is transmitted once, and only once, per session. The "Configure Terminal Session" now allows you to enter a password for these types of connections in the "Password" field; this type of password, however, is saved in a location separate from the password for the more secure session types.

* An option to "Prompt before closing if session open" has been added to the Preferences "Session" panel, so one can disable the alert requesting an OK before closing a session window when a session is still open.

* The Serial menu now has a "Local Echo" item to allow you to enable local echo on serial sessions.

* Mouse single-clicks in an IBM 3270 session window now move the cursor immediately.

Menu enhancements:

* The "Control" -> "Size" submenu now includes "Larger" and "Smaller" commands to change the font size; these commands have been assigned to the Command-'+' and Command-'=' keys.

* Selecting a window from the "Window" menu for a Session document now brings up both the emulator and its .edit window in their prior order, and no longer alternates between the emulator and .edit windows; pressing the Control key while selecting a window brings only the emulator window forward; pressing the Option key while selecting a window brings only the .edit window forward.

Menu key command changes:

- Command-',' now brings up the dataComet "Preferences" dialog rather than executing the "Match Brackets" command.

- Command-''' and Command-'"' execute the "Match Brackets" command. (The "Scrollback Buffering" command no longer has a command-key equivalent.)

- Command-'E' now executes the Mac standard "Use Selection for Find" command. You can then use "Find Again..." (Command-'G') to find the string.

- Command-';' now executes the "Toggle .edit Window" command.

- Command-':' now executes the "Go to Line..." command.

- Command-'+' and Command-'=' make the screen font size larger or smaller.

- Command-'\' executes the Zoom command.

- Command-'|' executes the Window menu "Close Session" command.

- Command-Option-'/' is now used to execute the Cursor menu "Add Returns" command, since Apple now uses it for a default Shortcut.

Dialog Enhancements:

* The dataComet "Preferences" panels now contain a popup menu with a list of open documents, allowing you to view session configurations for different sessions easily. The dataComet "Preferences" dialog now saves its position so the next time you open it, it will appear in the same place on the screen.

* The dataComet "Preferences" "Printing" panel now has popup menus allowing you to view and select the font and font size settings for both onscreen display and printing. The Control menu "Font" and "Size" submenus now set only the on-screen font and its size by default; you can set the Print font and size from these menus by holding down the Option key.

* A Help dialog has been added to improve help for modal dialogs, such as the "Configure Terminal Session" dialog; Control-Clicking on an item in a modal configuration dialog will open the Help dialog and display the information for that item.

* A number of improvements were made to the "Define Macros..." dialog:

  - A popup menu containing a list of open documents now allows you to view settings for other documents easily.

  - Pressing the "Set" button now leaves the selected macro displayed to make editing of macros in other documents easier. To select a new key for remapping, one must now Press the "Cancel" button.

  - A "+ Button" button has been added to the macro dialog to make it easy to add a new button to an emulator's session document.

  - The "Use Command Font" checkbox may now be toggled when a macro is displayed, so it's now easier to switch between the Command Font, with its graphic renditions of PF keys, and the font selected for displaying the document.

  - An "Alt-key" checkbox has been added to the dialog so Alt keys can be set without holding down the mouse button. Toggling the checkbox will refresh the key display so the macro can be viewed easily viewed in both the standard and Alt-key states.

Macro Enhancements:

* The area which displays macro buttons at the top of an emulator window now resizes dynamically depending on the number of buttons, and the maximum number of buttons per window has been increased to 256 from 24.

* A new macro command, '!""string\000' has been added so that comments can be incorporated in macros. The string after this command is ignored when macros are executed.

* Macros have been added to simplify opening files which are not in one of dataComet's default open folders:

- "!Fv": "!Fvvolumname\000" sets the default folder to use for files subsequently opened with the "!FN" and "!F¢" macro commands.

- "!FN": "!FNfilename\000" opens a file in the currect macro default folder.

- "!Fu": Sets the default directory for opening user macro commands to the user's home directory.

- "!FUfilepath": Opens "filepath" in the user's home directory.

* Added macros for support of global variables:

  - "!$\nnn": Put global string numbered 'nnn'
  - "!G\nnn": "Get" variable numbered 'nnn' from following
    macro string terminated by '\000'
  - "!g\nnn": "Get" variable numbered 'nnn' from selection

* Macros have been added to facilitate loading and transmitting files with data in a CSV format. These commands are:

- "!F$": "!F$filename\000" loads data from a file with fields separated by a delimiter into an array of 255 strings.

- "!$\nnn" sends the string corresponding to the number to the host.

- "!,\nnn" sets the field delimiter to a value other than the default value of ','. (Note that the Tab character is '\009'.)

* Other macros have been added to support CSV data file processing:

  - "!p+": select next row of CSV values
  - "!p-": select previous row of CSV values
  - "!p1": select first row of CSV values
  - "!p$": select last row of CSV values
  - "!pe": test used after "!p+": if end of values, cancel
            enclosing loop
  - "!p.": test used after "!p+": if end of values, cancel
            all remaining macros
  - "!p?": tests for error condition in macro command execution
            and aborts macros for the session if an error
            occurred; automatically reset when tested.
  - "!p/": resets error condition code.

Bug Fixes:

* CRITICAL: Remedied a failure to catch SIGPIPE signals when a terminal session was not closed properly from the host end, which could cause dataComet to terminate abruptly. (Note that dataComet sessions do not process data from the host when you have scrolled back in the session's scrollback buffer, so connections may be terminated if the host sends data and requires an acknowledgment while you are scrolled back. This deficiency will be remedied in a future release.)

* Fixed a problem where key macro keycodes were being translated improperly when interpreted on PowerPC vs. Intel machines, so that key macros created on one platform could not be used on the other platform. Keycodes will now be interpreted correctly regardless of the type of machine on which they were created; 10.2.0 users must download 10.2.1b1 for this fix to work properly.

* The size of the button macro name field in the emulator structure has been increased from 63 to 255 so entering a button name longer than 63 characters in the "Rename button" dialog will no longer cause a crash.

  Connection fixes:

* More informative error notices have been added to assist in the interpretation of SSL connection errors.

* Connection Macros are now executed only once for Shell sessions; they had been executing twice.

* Telnet linemode ("Send after Return" in the Telnet menu) now works correctly.

* Session connections made through TCP (SSH, Telnet, Telnet/SSL) are now deemed to be open as soon as a receive call returns data; this was highly unlikely to cause a problem, but avoids a situation where an attempt to send data to the host might fail.

* Cancelling a Page Setup print-format dialog triggered by host-driven print streaming (VT100) will now cancel printing the datastream rather than resulting in repeated Page Setup dialogs.

  Window handling fixes:

* The emulator screen position is now saved correctly when the session document is closed; in 10.2.0, the position was only saved if the window had been zoomed.

* A zoomed emulator window will now appear on the same monitor when more than one monitor is in use.

* Command-Clicking on a document window title now brings up the standard MacOS file path popup menu, allowing you to view the file path and open folders in the Finder easily.

* The Window menu "Next" command (option-tab) now proceeds to the next open window rather than stopping the cycle if a Session window has a closed connection.

* The appearance of emulator windows has been improved. The packet counters and timer are now greyed out when the session is closed, and the Rows and Columns fields at the bottom of the emulator screen now have more area allocated to them.

  Dialog fixes:

* Dialogs have been fixed so the text cursor appears when the curosr is over the active text field.

* The appearance and functionality of the "Find" dialog has been improved. The "Backwards" checkbox has been replaced by a "Previous" button. The "Replace" command now works correctly when the "Replace" text is empty.

* The "Define Macros..." dialog now always displays the ASCII character zero (NUL), which is used in dataComet macros to terminate strings, as '\000' rather than the Comet Fonts "^A" character to avoid confusion.

* The "Configure Terminal Session" dialog has been improved so that tabbing to the next field works in a sensible fashion, and clicking on a text field which does not apply to the current connection type produces a brief popup message rather than an annoying alert -- and now it's not possible to enter text in that field.

* The default session type for a "New" session is now Telnet (or SSH for dataComet-Secure) rather than a "Shell" session.

* Entering an empty address in the "Configure Terminal Session" "Connect to:" field now works correctly to connect to the machine's own IP address.

* The File Transfer Progress dialog now displays byte counts with commas.

* Fixed the File Transfer Progress dialog so the transfer counts are only updated once a second; this yields a substantial improvement (~80%) in file transfer performance when using ZModem.

* IND$FILE IBM file transfers now display an update on the transmitted file length in the emulator prompt area.

Edit window fixes:

* Several problems with edit windows have been fixed; extra lines should no longer appear in the window when text is pasted into the window.

* dataComet's edit windows now interpret linefeed characters in files so they display correctly, and saves them back to the file as linefeeds. Edit windows will now reliably load up to the maximum 32,767 character limit, rather than failing to load the last 2,000 characters of a file which is over 30,000 characters in length.

* Saving a new Session configuration now always creates a new .edit companion text document, so a "Save text" command will succeed when the session document is reopened, even when the .edit document was not saved the first time around.

* Changing the font in edit windows now takes effect immediately, rather than after the font size is changed.

* The '<<' and '>>' "Shift Text" buttons at the bottom left corner of edit windows now repeat when they're held down.

Menu fixes:

* Saving a new session document to the global sessions folder now updates the Sessions submenu.

* Submenus have been fixed so they display more rapidly when you move the cursor over them to select an item from them.

* The 3270/5250 menus no longer shift position when the 5250 menu is toggled on and off in the 3270 preferences panel. The Macros menu now always appears before the Window menu.

* Window Minimize and Maximize events are now handled better; the window's menu item in the Window menu is marked to show the window has been Minimized, and you can expand the window by selecting the item.

File transfer fixes:

* SCP/RCP file transfers are now enabled in dataComet X, providing an alternative to using ZModem. SCP transfers in dataComet X are not encrypted (note that the "scp" file transfer protocol is the same as UNIX's "rcp" with a security layer wrapped around it.) Also, the SCP file transfer dialog no longer automatically brings up the Select File dialog when it's selected from the menu to perform an upload.

Printing fixes:

* Emulator screen printing: color banding which appeared when printing an emulator screen in color has been improved, so it should not appear unless a font is being drawn in double-wide/double-high modes (VT100). Also, the emulator cursor position may have appeared in screens printed in a very small size; this has also been fixed.

10.2.0 -Secure 2/5/10
10.2.0 -X

Bug Fixes:

* Modified mouse-click processing so Right-Click will be handled as a Control-Click. Control-Clicking in emulator windows no longer adds a Return (or Enter) after the selection is pasted; macros using the "!AM" command will need to be modified to add a Return after the "!AM" command.

* Modified dataComet's handling of the IBM 3270 Read Modified All command when a Select AID is processed so a mouse Control-Click on a Pen-Detect field will work correctly.

* Modified serial device name handling to use "cu" device names rather than "tty" device names so devices supported by the latest Keyspan drivers appear in the pop-up list of serial devices.

10.2.0b3 -Secure 10/5/09
10.2.0b3 -X

Bug Fixes:

* Fixed problem with text windows which caused spurious line returns to be added when pasting text.

Features:

* Zooming or resizing an emulator window now changes the font size so it fills the new screen area.

* Interpretation of Brown TN3270 documents has been enhanced so that most parameters are handled correctly.

10.2.0b2 -Secure 9/14/09
10.2.0b2 -X

Bug Fixes:

* Modified handling of demo time calculations.

10.2.0b1 -Secure 9/10/09
10.2.0b1 -X

Features:

* The applications are now compiled as Universal Binaries for native support on both Intel and PowerPC architectures. Shell sessions are significantly faster on Intel machines.

* The Comet fonts are now embedded in the application so graphics characters will display correctly even when the fonts have not been copied into the /Library/Fonts folder.

* The "Configure Session" dialog now includes a separate field for entering the port to use when connecting to a host address.

Bug Fixes:

* Native Intel support avoids triggering a bug which apparently affects all PowerPC binaries running under the Rosetta translator, where a keystroke may intermittently cause the Window Server to crash, placing the user back at the Login screen. (The crash will appear in the Console logs as occurring when "UCKeyTranslate" is called.)

* Opening a Kerberos Telnet connection no longer causes dataComet-Secure to crash under Snow Leopard.

* SSH connections now prompt the user for a password after a login failure when a Master Password has been entered incorrectly or the password set in a "Session Configuration" dialog is incorrect.

* SSH2 connections should now handle password change requests correctly.

* The cursor no longer blanks out during SCP file transfers.

* The Comet fonts have been modified so the bold "D" character renders correctly under Snow Leopard.

A1.1 dataComet & dataComet-Secure X Release Notes

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dataComet documentation. (Rev. 2/6/10)

This document has information on (select and use "Find..." to go to the section):

Known Bugs in the current version

Release Notes:

dataComet-X for OS X:

10.1.1 10.0.6
10.0.5 10.0.4 10.0.3 10.0.2

dataComet-Secure X for OS X:

10.1.1 10.1.0 10.0.6 10.0.5 10.0.4
10.0.3 10.0.2 10.0.1 10.0.0
10.0.0b4 10.0.0b3 10.0.0b2 10.0.0b1

10.1.1 -Secure 6/21/08
10.1.1 -X

Bug Fixes:

* Dramatically improved the screen drawing speed when text antialiasing is in effect. Also fixed a bug where antialiasing was not correctly initialized; if a session had not been opened in which anti-aliasing was NOT in effect, the font for a session with antialiasing would not be imaged correctly, resulting in an ugly appearance.

* Fixed a bug in the SSH Configuration "Keys..." dialog which would cause the application to hang if there was a previously selected Key file which was no longer present.

* Reverted to requiring holding down the Option key to resize the emulator rows/columns size to avoid distorting displays for applications which can't handle resize operations.

10.1.0 -Secure 6/21/08

Features:

* Added support for Telnet/TN3270 SSL/TLS secure connections.

10.0.6 -Secure 3/31/08
10.0.6 -X

Bug Fixes:

* Fixed a VT100 bug which sometimes manifested itself in the OpenVMS EVE editor, occasionally causing "Command" to appear in a text area when the DO key was pressed and the SPLIT WINDOW command was in effect.

* Fixed VT100 stream printing so Tabs are expanded.

* Fixed cursor selection in emulator windows so selections are offset properly; 10.0.5 introduced a bug which shifted the start of the selection range.

10.0.5 -Secure 3/1/08
10.0.5 -X

Bug Fixes:

 * Fixed a bug which prevented the macro buttons from working under OS X 10.5 (Leopard).

Features:

 * The macro buttons can now be displayed or hidden independently of the prompt area of the emulator screen (using the "Views" Preferences panel).

  10.0.4 -Secure   2/19/08
  10.0.4 -X

Features:

 * Support for anti-aliasing has been added; by default the "Global" Preferences panel has anti-aliasing enabled for all windows with the font size set to a size greater than 12 points.

 * Shell session performance has been enhanced.

 * Added "Hide all session .edit windows" option in the "Global" Preferences panel to enable users who don't wish to use .edit windows to hide them on a global basis.

 * Emulator windows are now resized without holding down the Option key, and the modeless configuration dialogs are now promptly updated to reflect the new window size.

 * The "Control Font" and the "Define Macro..." dialog font size is now set at 12 points to improve legibility on high-density displays.

 * Added a "Require session close from host" configuration option in the "Session" Preferences panel so user can't close a session without first closing the session on the host.

 * Emulator windows now hide the macro buttons if the "Views" Preferences panel option "Show buttons at top of window" is off.

 * Added an "Add Macro Button..." menu item to make adding macros to emulator windows more intuitive.

 * The default TEXT and BIN creators are now '????' rather than '3278' so TextEdit (or other user selected editor) opens documents.

 * dataComet and dataComet-Secure are now built using Apple's Xcode development system.

Bug Fixes:

 * Fixed a bug in display handling code which could cause crashes.

 * Fixed vulnerabilities identified in SSH1 RSA encryption and SSH2 which could allow Man-In-The-Middle attacks.

 * Fixed several SCP file transfer bugs:

   - SCP uploads over SSH2 connections no longer cause a crash when the file is larger than 120K.

   - SCP uploads of large files over encrypted Kerberos connections no longer suffer from file corruption due to repeated encryption of the same block of data.

   - SCP now works correctly when uploading a text file with line Wrap enabled.

   - SCP now works over Shell connections to remote hosts using OS X's built-in SSH client.

 * Enabled Control-C as interrupt character for Shell sessions.

 * Fixed URL handling so "telnet:" and "tn3270:" URLs open a Telnet session and an "ssh:" URL opens an SSH session. To help enable AppleScript control of sessions, URL sessions no longer present "Save session configuration" dialogs when they are closed.

 * Removed alert that was presented on execution of "Connection" macro for Shell.

 * Fixed a bug which limited pastes imported from other applications to 32K.

 * Enabled editing and execution of macro buttons when connection is closed.

 * The "Option is Meta Key" option in the "VT100" Preferences panel now works correctly when the "dataComet Keyboard" is

installed.

 * "Views" show packet counter options now work interactively.

 * Fixed problems with VT100 screen display areas appearing inverted when a variable-width font was selected and color mapping was off.

 * Fixed bugs in VT100 screen display when "Background Color Erase" mode was selected when characters were deleted or inserted and color mapping was off.

 * The "Word Count" window now displays the correct value for the words and lines in a selection.

 * The user beep sound now plays when emwindow is front window.

 * Applications can now be selected when the "TEXT App" and "BIN App" buttons are pressed in the "Transfer" Preferences panel.

 * File transfer extensions such as ".txt" are no longer added to file names when they are already present in the file name.

 * Fixed the "TEXT suffix" field in the "Transfer" Preferences panel so it is blanked correctly when it has not been entered (it was not being blanked when switching to a session for which it had been entered and then back to a session for which it has not been entered).

 * Printing text with characters from extended character sets in a text window no longer results in wrong characters appearing due to unnecessary character translation.

 * Fixed position of page number so it is centered correctly when printing.

 * The "Host Name" menu item in Telnet & SSH menus is now the host name rather than window name.

 * Fixed "Save Text as..." dialog so new session.edit window saved in Sessions folder by default.

 * Selecting a minimized dataComet document now activates the window.

 * The top window is now re-activated correctly after "Replace" option used when "Save configuration..." dialog is executed.

 * A new Shell document now comes up with window size and print font size set to the size selected for the "Comet Default" document.

 * The IBM 3270 "Attn" command now sends a Telnet "Break" command rather than a Telnet "Interrupt" command.

 * Changed IND$FILE file transfer dialogs so '.' is not translated into '¥' when download host file names are converted to Macintosh file names. Fixed the IND$FILE file transfer dialog so it no longer automatically sets the filename when a mouse click is used to select the file name text field (tabbing into the file name field still sets the file name automatically).

 * File transfer no longer aborts a file launch when "AutoLaunch" is set and the original file creator cannot be found, since Launch Services can launch alternate applications without the original file creator application being present.

 * Fixes to the "Configure Terminal Session" dialog:

   - Switching between SSH & Telnet connections now works without closing the emulator window.

   - An alert is posted immediately when when attempting to change Session bype while connected.

   - Shell reconfiguration can be performed while connected.

   - You can now reconfigure open Shell sessions without getting an error message.

   - The "Telnet Configuration..." dialog now sets Authentication and Encryption checkboxes correctly when it is brought up.

 * Fixes to the "Define Macro..." dialog:

   - Fixed a bug which could leave menu items disabled when a new text document was opened while the "Define Macro..." dialog was active.

   - Fixed the "Define Macro..." dialog so clicking twice on the menu bar dismisses menu rather the resulting in additional menu drop-down display.

   - Macro dialogs were not handling Minimize properly; now they won't minimize when a macro is selected.

   - Changed "Show all" macro text display so user not prompted to save dumped macros when closing window.

   - Menus are no longer disabled after cancelling Save for new text window when in Macro dialog.

10.0.3 -Secure 10/5/04
10.0.3 -X

Bug Fixes:

* Fixed a bug occurring with CopyPaste where a "v" would appear in the emulator window when attempting to execute a Paste command.

* The macro buttons at the top of the emulator screen are now rearranged when the window size is changed so they wrap at the right edge of the window.

* All files are now enabled in the Open File dialogs used by the "Open...", "Type file name at cursor" and Edit menu "Append file to .edit window" menu commands and the Transfer menu "Text App", "Bin App", and "Bin Type" buttons. You can now set the Transfer dialog "Text App", "Bin App", and "Bin Type" file creator and types by entering text manually. (Applications are not enabled in the Open File dialog, which makes it more difficult to use the Transfer dialog file type/creator buttons; entering the types manually may also be necessary since under OS X some applications don't set the Macintosh file type or creator when they create files.)

* The emulator screen clipping is now set correctly when the emulator window is smaller than the size of the emulator area; this bug would cause the vertical scrollbar to be overdrawn.

* 9, 12, and 16 are now underlined in the "Size" menu to highlight the available bitmap font sizes supplied with dataComet; these may give you more readable text than TrueType fonts at these sizes.

* Fixed a bug which caused IND$FILE configuration settings, e.g., TSO Host transfer type, to be ignored.

10.0.2 -Secure 3/9/04
10.0.2 -X

Features:

* Beta versions of TrueType fonts are included in this distribution to support printing of the special character sets under Mac OS X in addition to allowing larger font sizes in emulator displays. (The old Comet-fonts, which are currently implemented as bitmap fonts ('NFNT' resources), unfortunately cannot be printed under Mac OS X; pages containing these characters would fail to print.)

Bug Fixes:

* The Window menu "Bring All to Front" can now be recorded in a macro; likewise the "Quit" command will be recorded and executed correctly in macros.

* Fixed the function-key handling code so that the PowerBook "fn" function key will produce Shift-Function PF keys. (Unfortunately Apple's latest updates do not support detection of the Option and Control keys when used with the "fn" key.)

* Fixed a bug which could cause pasting over 16K of text into an emulator window to hang a session.

* Fixed the IBM menu so the IBM Select Cursor menu item will work when it is selected.

* When 8-bit control sequences are selected in the VT100/VT220 emulator, sending CSI[(0x9b-[) will now work even though the additional '[' is redundant.

* Fixed ZModem transfers so that the host flag to convert newlines to the native host newline is set when a file being uploaded is not a binary file (according to the flags set in Internet Config). This should fix problems uploading text files to VMS hosts.

"Configure Terminal Session" fixes:

* If the Control menu "Lock" item is disabled (for kiosk applications) or the Master Password dialog is cancelled the password entered in the "Configure Terminal Session" will now work as expected. It will NOT be stored in the session configuration, but will be used for the first login attempt for an SSH or Kerberos session.

* Fixed the "Configure Terminal Session" dialog so that if you have your Global configuration set to open it on launch, and then change the Host Address field, the modified address will be used.

* Fixed so leaving the hostname empty will yield your own machine's IP address so it will open a session to itself. This worked in Classic dataComet but was failing under OS X.

10.0.1 -Secure 4/21/03

PLEASE UPGRADE TO THIS VERSION IF YOU ARE USING dataComet-Secure 10.0.0!
This version improves handling of several SSH security related problems!

Features:

* Added support for mouse wheel events; holding down the Option key while wheeling will scroll by pages.

* The "Comet Default" document now appears first in the list of documents in the File->Sessions submenu to make it easier to open and modify the default session configuration. (This is especially useful for defining the default session document buttons and macros which will appear in a New Shell.)

* Added support for 16-color colormaps for VT100 series emulators ("Use 16 colors" in the "Color" Preferences pane).

* The option "VT100-wrap (wrap at column 81)" has been added to the "VT100" preferences panel to allow you to disable the VT100 line-feed glitch.

* The "dataComet Keyboard.rsrc" has been added to the distribution to allow elimination of dead-key remapping (works only with OS X 10.2 or later). Also, when the "Option is Meta Key" option is selected in the "VT100" Preferences Pane, the keymapping now works in a more intuitive way (Option == Meta, Shift-Option == Shift-Meta, Control-Option == Meta-Control).

* Added new dataComet Launch macro features to improve kiosk functionality under OS X; see Help document "A4. dataComet Kiosk Configuration". Using the "!\000\196" macro to disable the dataComet-Secure menu "Preferences..." command now works correctly; disabling the "New -> Shell" submenu item will disable local Shell connections.

Bug Fixes:

* Addressed problems related to the CERT¨ Advisory CA-2002-36 "Multiple Vulnerabilities in SSH Implementations" (described at <http://www.cert.org/advisories/CA-2002-36.html> and <http://www.kb.cert.org/vuls/id/AAMN-5G62GP>). These might have allowed a cracker to cause dataComet-Secure to crash when attempting to open an SSH2 connection (to a host address controlled, or feigned, by the attacker).

* Added a dialog which allows users to skip connection macro execution for local sessions (whether PTY or SSH->self). This helps plug a major security hole, since a hostile systems cracker might induce you to download and execute a dataComet Shell session document containing a noxious shell script embedded in the Connection Macro.

NOTE that Apple's Terminal application will perform similar shell-scripting functions using ".term" and ".command" files, and this is a serious weakness! (The only way known to me to avoid this vulnerability with Terminal is to disable the Terminal application by removing the ".app" suffix or deleting it.)

* Avoided NULL pointer dereferences which could cause dataComet to crash under some circumstances when a session document is opened, or the "Open "Comet Default" automatically on launch" option was enabled (in the "Global" Preferences pane).

* Fixed so "Comet Default" will load previously saved "Comet Default.edit" window text when opened automatically on launch.

* Fixed a crash which occurred under OS X 10.2 when opening a session document saved with an empty "Connect to:" field in the "Configure Terminal Session" dialog.

* Fixed Telnet and SSH connection handling so that connections are made asynchronously, and the "Reopen session automatically on failure" option (in the "Session" Preferences panel) works correctly. SSH disconnects due to session failures are now reported without triggering a dialog box requiring a user response.

* The default connection type is now a local Shell connection. New Shell connections now include any buttons or key macros defined in the "Comet Default" session.

* Fixed the "Configure Terminal Session" dialog so that renaming the session to clone a new session will properly copy all the macros and resources associated with the previously defined session document.

* Emulator handling of very long files (e.g., "cat /usr/share/dict/words") has been fixed so performance no longer bogs down abysmally when scrollback buffering is enabled.

* Fixed XModem transfers so that they will work! (A bug in the filename dialog was causing transfer cancellations.)

10.0.0 -Secure 1/31/03

Bug Fixes:

* The time and packet counter displays have been expanded to display uptimes longer than a month ...

* The File menu New -> Clone menu item has been fixed so selecting the menu item directly works.

* SCP file uploads now update the progress dialog promptly.

10.0.0b4 -Secure 10/1/02

Features:

* Serial connections are now supported.

* Drag and Drop is now suppported.

Bug Fixes:

* Fixed a 3270 emulator bug in handling the Start Field command which could cause a crash due to dereferencing a NULL pointer.

* Fixed a crash which could occur when a session is opened from a session document (SetPortRGBForeColor() was called with a NULL colormap pointer).

* Fixed the Control menu "Internet Config" command so it no longer causes crashes under OS X 10.2. (It now attempts to specifically open the file mapping panel; note that unfortunately user-configurable file mapping is only supported through Internet Explorer under OS X... but maybe someday this deficiency will be remedied.)

* Pastes into the "Set Registration..." and other dialogs have been fixed so they will use the updated scrap when switching in from another application.

* Fixed the "Configure Terminal Session" dialog Authenticate "(Alt. ID)" field so that it will correctly send the string as an alternate user login name when making a Kerberos connection.

* The "Save Configuration..." dialog has been fixed so sessions now saved to the dataComet "Sessions" Folder by default.

* Window controls are now deactivated when the window (or dialog) is in the background.

* The buttons in the top of the emulator window have been changed from round to bevel buttons to save space and look a little less distracting.

10.0.0b3 -Secure 9/3/02

Bug Fixes:

* Fixed a crash which occurred when a "New" session was created with PC-ANSI or SCO-ANSI selected.

* Fixed a crash which could occur in SCP binary file transfers.

* Fixed crashes which occur under 10.2 (Jaguar) due to failure of calls previously included in the OS X System which have been omitted in 10.2 (specifically the tgetent() terminal capability call and the krb5_free_kdc_rep() Kerberos call). The "Default Folder X" extension also triggers this crash by forcing the linker to attempt to resolve all call references.

* Anti-aliasing is now disabled. (Per-session control of antialiasing will be added in a future release.)

* Fixed selection handling overflow problem, so selections in emulator scrollback buffers longer than 32,767 lines will be displayed and copied properly.

* Registered copies of dataComet now work correctly when accessed by users who have read-only access to the application.

* Documents which are only available to the user with read-only permissions can now be opened using dataComet.

* Copy and Paste functions have been fixed so the same scrap is used by both the emulator windows and edit/dialog windows. This caused failures to update the scrap correctly when copying and pasting between the two.

* The "SOCKS proxy" address in the "Configure Terminal Session" dialog is now saved correctly in session documents when the "Global" option is not selected.

* To avoid printing failures where "nothing happens", bitmapped fonts (such as the Comet-fonts) are now remapped to Courier when printing.

* The VT220 delete character and insert character functions have been fixed so they handle Background Color Erase mode correctly.

* The SCP and IND$FILE transfer dialog boxes are now drawn completely when an upload command is selected.

* Fixed a loop which occurred if an arrow key was pressed in an emulator after the "!W>\000" macro had been executed to direct input from the .edit window into the emulator window.

* Added "!Ex" macro to clear scrap (replacing obsolete "!cC" macro).

* Button control sizing was fixed so that no visual artifacts appear when they are drawn under 10.2.

* The interpretation of internet addresses and domain names in the "Configure Terminal Session" dialog have been changed so Brown TN3270 document "hostaddr::socket" notation is supported.

* The cursor position report is now updated when a selection is being made in an emulator window (this option is controlled by "Preferences/Views/Use mouse position").

10.0.0b2 -Secure 8/13/02

Bug Fixes:

* The Enter key on the keypad now sends an IBM 3270 Enter rather than doing nothing when IBM 3270 emulation is selected.

10.0.0b1 -Secure 8/5/02

Features:

Version X runs under Mac OS X as a native Mach-O Carbon application. Local Shell Terminal sessions are supported as well as Telnet/TN3270 and SSH1/SSH2 connections. In general X is similar to previous versions of dataComet-Secure, though some minor changes have been made in appearance and menu arrangement.

BUG NOTES:

* Note that printing with Comet fonts will probably fail to produce any output, since the system no longer supports printing of fonts provided as 'NFNT' bitmap font resources. Printing emulator screens containing VT100 graphics or other special graphics characters may prove problematic. Versions of these fonts will eventually be made available in a format that will be supported under OS X.

* Support for direct access to Serial ports under OS X is not yet supported.

A1.1. dataComet-Secure Classic MacOS Release Notes

This document has information on (select and use "Find..." to go to the section):

Known System Problems affecting dataComet

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* WARNING: Radeon video board display bug (4/18/92): The ATI Radeon video drivers installed by default with Mac OS 9.2.2 may malfunction with dataComet/dataComet-Secure and NiftyTelnet, resulting in incorrect screen displays. Updated drivers from ATI apparently fix this problem; they are available from

<http://www.ati.com/support/drivers/mac/macos-march-2002-update.html>

* WARNING: Kerberos 5 (4/18/92): The "OT AutoPush Support 1.0" System Extension, which may be installed with Interarchy, OTSessionWatcher, and other software, causes non-fatal network errors to occur with MIT Kerberos 4.0; you may be better off disabling this extension. (See "5.0.6b2 -Secure" note below.)

* WARNING: Mac OS 10.1.2 has a fatal bug which causes a system panic when Internet connections are made to one's own Internet address by an application running under Classic (this works correctly in earlier releases of Mac OS X, and either works or produces a non-fatal connnection failure in later releases). dataComet now posts an alert warning of this bug when opening a connection to one's own address.

* NOTE: When running under System 7.5 and later the Standard Put File dialog used in the "Save As..." commands does not by default get set to the home folder of a document, but instead is set to the most recently opened folder. If you want to get the correct folder, you need to open the "General Controls" Control Panel and select "Folder which is set by the application" (under the heading "Documents: When opening or saving a document, take me to..."); this setting will allow dataComet to set the folder correctly before displaying the Standard File dialog.

* Cancelling an Open Transport PPP session open dialog which has been launched from the "New..." dialog will result in a crash due to a bug in PPP's dialog management, which releases dataComet's "New..." modal dialog window rather than the PPP dialog window. This OT/PPP bug only appears when PPP is opened and then cancelled from the "New..." dialog.

* If Diamondsoft's FontReserve Extension 2.0 or 2.0.1 is installed, it will hang when dataComet attempts to open fonts contained in the dataComet Fonts folder. NOTE: Diamondsoft fixed this problem in version 2.0.2. You can also avoid this by moving the Comet-fonts from the dataComet Fonts folder into the System Fonts folder.

5.0.7 -Secure 6/4/02

Bug Fixes:

* The "SCP configuration..." dialog "File modes" and "Directory modes" options now display and set the applicable modes correctly.

* Source code was recompiled so all features/bug fixes listed below are properly incorporated... a few which were incorporated in the OS X development version had been omitted from the 5.0.6 build (including the SCP wildcard expansion fix and "rcp" mode and NCSA-style session logging).

5.0.6 -Secure 5/7/02

Features:

* "aixterm" escape sequences for host selection of Intense/Light colors have been added for compatibility with PINE's 16-color mode. (This works only when dataComet's SCO-ANSI 16-color mode is selected; for PINE use, the "Control Emulator..." dialog option "Wrap text when line overflows" should also be disabled.)

* The "Expire Kerberos tickets on Quit" option now disposes of the user's credentials if and only if they were first acquired through a dataComet-Secure session.

Bug Fixes:

* The Kerberos connection status notes in the "button bar" are now cleared correctly after connecting in cases where the host sends display data before the Kerberos negotiations are complete.

* Using Control-key option to get help for items in the "Help" menu no longer causes dataComet to crash.

5.0.6b2 -Secure 3/26/02

Features:

* Added "Expire Kerberos tickets on Quit" to the "Control Global..." dialog; this option is on by default. Leaving this option on helps avoid a Kerberos-related bug, which may cause failures when forwarding tickets to the host (which is enabled when "Fwd Creds" is selected for a Kerberos Telnet session). This bug is apparently caused by interactions with the "OT AutoPush Support 1.0" System Extension.

5.0.6b1 -Secure 3/9/02

Modifications:

* The Kerberos 5 code was modified to improve memory management.

* The "Comet-APL" font was updated so that it contains 'NFNT' resources rather than 'FONT' resources.

5.0.5 -Secure 2/1/02

Features:

* An option to use the "rcp" command rather than "scp" was added to the SCP configuration panel so the rcp/scp file transfer method can be used when the SSH server package does not include support for SCP (e.g., SSH.com's SSH server). Note that using "rcp" rather than "scp" has no security impact in this case, since the data is being transmitted over the secure terminal connection.

* Added support for session logging as it is implemented in NCSA Telnet, with the data recorded as it is received, rather than when it scrolls off the top or is cleared from the screen. The Shift-Option-"Open log..." and Shift-Option-"Log session in" options to the "Open log" command are used to select this logging mode. This approach to logging helps preserve the host line-feed structure (long lines which wrap down automaticaly at the end of a row on the emulator screen will not have additional Carriage Returns added).

Bug Fixes:

* Fixed problem with the correct scrap failing to appear in the "Set dataComet-Secure Registration" dialog. (This bug was a side effect of the OS X paste bug fix in version 5.0.4/4.6.4)

* ZModem file transfers over serial connections have been fixed so the receive buffer size is correctly initialized in all cases. (Transfers would fail with an "Out of memory" message unless a Telnet session had been previously opened.)

* SCP file transfer support has been fixed so that wildcard expansion and automatic transfer type selection (Binary vs. ASCII) works correctly when uploading.

4.6.6 2/4/02

Bug Fixes:

* Fixed bug in handling old registration code format, which was used in registrations prior to 1998.

4.6.5 2/1/02

Bug Fixes:

* Incorporates into dataComet bug fixes from dataComet-Secure releases up to 5.0.5.

5.0.4 -Secure 1/7/02

Features:

* A new feature simplifies opening a Terminal-style local SSH session when using MacOS X: Your own address will be used if no address is entered in the "New"/"Reconfigure Session..." dialog's "Connect to:" field when the session is configured to connect using Telnet or SSH. A session document named "Shell" is now included in the "File" menu "Sessions" submenu as an easy-to-use example.

* A dialog now warns that under 10.1.2 connections to one's own machine (such as the "Shell" document makes) may lead to a system panic. This is due to a bug in the operating system; under previous releases this works fine.

* Added two "Control Emulator..." options for ASCII emulators:

- "Display full Apple character set", so the characters 0x80 - 0x9F are treated as display rather than control characters. This option allows you to view all the available characters when connecting to a MacOS X machine (note that some applications under OS X, e.g. "vi", may still not display characters >= 128 directly).

- "Do CR-LF when CR received" (CR from host -> CR/LF).

Bug Fixes:

* Pasting text under Mac OS X now works consistently so you get the most recently cut or copied text from OS X applications rather than an out-of-date local scrap. (OS X is not prepared to deliver the correct scrap when it delivers "Resume" event to a Classic application, so dataComet had to delay its request for the current scrap to get the correct text.)

* Pasting text into dataComet's modal text dialogs now works again.

* An empty Terminal Type "Alt. ID" field in the "New..."/"Reconfigure Session..." dialog is now saved correctly in the session configuration (this problem occurred only if an alternate string had already been saved).

* Using the mouse to select the "Download" menu item in the "File" menu "Transfer" submenu now brings up a Download dialog (rather than the Upload dialog).

* A bug which could cause a crash if a PF key greater than 72 (for which no macro had been defined) was triggered by a Shift-Option-"Mouse button" combination has been fixed.

* A bug which could cause the wrong labels to appear in the buttons at the top of the emulator window has been fixed.

* Fixed IBM 3279 display bugs introduced by underline fix in 5.0.2.

* Fixed the 3270 emulator so that DDM file transfer support is included in the Query Structured Field Summary response.

* Fixed the format for the "Host key fingerprint" in the SSH1 login trace so garbage characters will not appear at the beginning of the fingerprint string.

4.6.4 1/7/02

Bug Fixes:

* Incorporates into dataComet bug fixes from dataComet-Secure releases up to 5.0.4.

* The Kerberos plugin interface is no longer supported by dataComet. For Kerberized Telnet sessions you should use dataComet-Secure, which incorporates support for Kerberos 5.

5.0.3 9/2/01

Bug Fixes:

* If you have configured a session to do session logging, when the document is opened you can now use the "Cancel" button in the "Save File" dialog to cancel logging (this formerly required an "OK" response: pressing "Cancel" did not turn off the logging option, so the "Save File" dialog would reappear as soon as new data was received!).

5.0.2 7/30/01

Bug Fixes:

* The message "Server initiated key re-exchange" no longer appears in SSH2 sessions.

* A bug was fixed; it affected IBM 3270 emulation, and resulted in underlined blank characters appearing without underlines when using fonts other than the Comet-Fonts.

5.0.1 7/23/01

Bug Fixes:

* Telnet sessions now default to sending only a Carriage Return character when the Return key is pressed, rather than Carriage Return + Line Feed. If a host requires the additional Line Feed character, you will need to set the "LF" option in the "Control Emulator..." dialog.

* A bug which could cause passwords to appear in cleartext when entered into the SSH dialog password field has been fixed.

* Several bugs which occurred on machines running MacOS 7.5 variants have been fixed. Dialog text and "OK" button rectangles have been rearranged for better appearance; two bugs which could cause crashes on 68K machines when using the SSH configuration dialogs have been fixed.

5.0 6/15/01

Features:

* Telnet DES3-CFB encryption is now supported. Note that some host telnet server implementations declare support for this encryption type in Telnet negotiations but fail to handle it correctly.

* A "Telnet Configuration" dialog has been added to allow you to select Telnet options such as Authentication (currently only Kerberos 5 is supported) and Encryption (DES or 3DES).

5.0b2 6/4/01

Features:

* Telnet connections authenticated using Kerberos 5 are now supported (on PowerPC machines only). Encryption using DES-CFB can also be negotiated to further enhance session security. (NB: dataComet no longer supports the use of Telnet Plugins to provide an interface to Kerberos. This enhances dataComet's compliance with the U.S. Federal Export controls on encryption products.)

5.0b1 5/10/01

Features:

* SSH and Telnet sessions can now use SCP (Secure Copy) to transfer files and folders to a host which has the "scp" application installed (note that this is secure ONLY with SSH sessions). dataComet's SCP implementation brings up a dialog which issues SCP commands from the terminal command line, so you can perform file transfers interactively rather than starting a separate session for each SCP transfer (which in most implementations also requires that you enter a complicated command string containing the file modes and file names). All of dataComet's standard file transfer features are available when using SCP (Autolaunch, Autowrap, Command-U automatic edit window uploads, etc.). See the document "6. File Transfers" for more information.

* User names and passwords can be saved in session documents. Passwords are saved in encrypted form; the user enters a Master Passphrase as an encryption key, so by entering the Master Passphrase once the user can enable automatic password entry for a number of sessions. The Master Passphrase is never stored; passwords and SSH RSA session keys are both encrypted using DES-3 156-bit strong encryption. A "Change Passphrase" command in the "Control Global..." dialog allows the user to enter a new passphrase, and automatically update all passwords in session documents contained in the dataComet "Sessions" folder so they will be decrypted properly when the new Passphrase is entered.

* A "Lock" command allows the user to lock the entry of menu commands and keystrokes until the correct Master Passphrase is entered. This helps provide improved security; you should be especially careful to Lock your sessions when using the automatic password entry feature with SSH or when using a "Type password" macro (see "4. Macros").

* A new keypad mode for VT100 was added so a calculator keypad can be used with cursor application mode, which some applications expect.

Bug fixes:

* SSH zlib compression now works reliably. The implementation in 5.0a5 contained an error which could sometimes cause hangs or crashes.

5.0a5 3/15/01

Features:

* This Alpha Test version of dataComet-Secure adds support for the SSH1 and SSH2 Secure Shell protocols. All features of dataComet, including ZModem file transfers, work with SSH connections. SSH features supported include automatic SSH protocol selection, client authentication using user passwords (and under SSH1, using RSA public keys), encryption using Triple-DES or Blowfish, and compression using zlib. Host public keys are maintained in files using the known_hosts format (e.g., the "NiftyTelnet SSH Known Hosts" document can be copied directly to dataComet's "Security" folder and used as-is).

Features NOT supported in this release: SSH1 RSA client public key generation; SSH2 public key client authentication; XWindows or TCP port tunnelling; and SCP or SFTP file transfer protocols. NOTE that this release will not run on 68000 machines such as the Mac+: it requires a 68020 or higher processor.

NOTE that enabling zlib compression seems to lead to occasional dropped connnections. This bug is under investigation.

* The registration dialog is now a modeless dialog to make it easier to set your registration: you can now open the dialog, go to other windows to copy a registration code, and then paste it into the registration text field.

* You can now select a vertical cursor in emulator windows using the "Prefer vertical cursor" option in the "Control Session..." dialog. You can also opt to have the emulator cursor off when the window is in the background by using "Hide cursor in background windows" in the "Control Global..." dialog.

Bug fixes:

* Switching windows to a new window while the "Define macros..." dialog is up no longer results in a loop where a dialog repeatedly prompts you to save the "new document" until you save the document, rather than allowing you to cancel.

* Window selection macro commands have been fixed to work more smoothly, so that if you include a window select command (e.g., "!WShostwindow\000") in a macro, all the succeeding macro commands will be copied over to that window's macro queue and executed in its context. This makes it much easier to execute a macro which copies data fields from an emulator window and pastes them into an edit window.

* A session document's emulator color maps are now copied when the document is duplicated by changing the document name in the "New..." (or "Reconfigure Session") dialog.

4.6.4b2 12/12/00

Features:

* dataComet now supports IND$FILE transfers for IBM 3279 sessions, including features supported in dataComet's ZModem implementation such as AutoLaunch, text wrapping and unwrapping, and MacBinary and BinHex encoding and decoding:

- The "Upload" and "Download" commands in the "File -> Transfer" submenu bring up a dialog which helps you build and execute an IND$FILE host command.

- A dialog has been added to configure options available under IND$FILE, and a "DeTab" option has been added to the "Control File Transfer" dialog for expanding tabs when uploading. (For more information, see the document "6. File Transfer".)

- Macros have been added to set the Macintosh file name and IND$FILE options so IND$FILE transfers can be executed automatically using macro commands.

Bug fixes:

* The "!WA" macro, which allows you to open items in the Apple Menu from a macro, has been fixed so it works reliably.

4.6.4b1 11/1/00

Features:

* Improved support for SCO-ANSI emulation, adding SCO and XENIX-specific color selection escape sequences, including background color selection and reverse color mapping. A new terminal type option has been adding in the "File New..."/"Reconfigure Session..." dialog to allow explicit selection of the SCO-ANSI terminal type and keyboard mapping.

* For Serial connections you can now enter a telephone number in the "File New..."/"Reconfigure Session..." dialog to which to connect, making it easier to configure dataComet sessions for dialup connections. This uses a global modem dialup macro which can be modified using the "Set dialup macro..." command in the Macro menu (the dialup macro is set by default to send "++ +ATH<Return>ATDT" before the number is transmitted to the modem). The "Host Name/Address:" field is now labelled "Connect to:" in the "New..." dialog.

* An option to "Notify when new data arrives in background" has been added to the "Control Session..." dialog; this sets the task menu to flash when dataComet is in the background and new data arrives for the session. A "!CN" macro command has been added to perform this function also.

* A "Next" command has been added to the Window menu to select the next window. You can press "Option-Tab" to select the next window from the keyboard, and "Shift-Option-Tab" to select the previous window. To accomodate this new keymapping, the IBM 3270 "Select Cursor" command is now executed using "Control-Tab".

Bug fixes:

* SCO-ANSI keymapping now sends a DEL character when Shift-DelRight is pressed (the lower right key in the six-key function group).

* Macintosh international characters are now automatically remapped to 7-bit National characters when a National Character Set is selected in VT100/ANSI emulators.

* Text pasted into the "New..."/"Reconfigure Session..." dialog now triggers item updates correctly (this was occurring only when characters were directly entered into the fields).

* The "ALA" session document has been updated to connect to SUNY Binghamton's library card catalog.

* The Comet fonts have been modified so that ATM Deluxe no longer complains that two of them are "damaged". (Please note that there were in fact no problems with the fonts which could cause malfunctions.)

4.6.3 5/22/00

Bug Fixes:

* The VT320 soft reset command was fixed so it correctly resets character sets and attributes.

* The Enter key function, used in an edit window to send text to a host session, has been fixed so that a Carriage Return will be added if the last line of text is being sent and it has no Carriage Return at its end.

* ZModem file transfers have been fixed so that control-character escapes are added correctly. Note that support for 7-bit data

paths (added in ZMODEM-90) has not yet been added, so dataComet's ZModem implementation will fail when using with a 7-bit connection.

4.6.3b1 4/11/00

Bug Fixes:

* Printing has been fixed so that crashes will no longer occur when the LaserWriter 8.3.4 driver is used.

* Printing screen selections now works correctly when a single line is selected (previously this printed nothing).

* The font submenus are now fully compatible with Suitcase so the "Font" and "Control Font" submenus now use Suitcase's special font display capabilities. In addition, this change fixes a Telnet connection problem caused by Suitcase's routines, where Suitcase's system trap patching caused failures when first attempting to open TCP Telnet sessions (error code -23).

A number of bugs and deficiencies in advanced VT100/VT320 functionality were fixed:

- The display of underscores can now be turned off using the "Do underscore" option in the "Control Emulator" dialog.

- Support for the VT320 soft reset command was added.

- Support has been added for non-standard command sequences using to select the foreground and background colors ("<ESC><nm" for foreground and "<ESC>=nm" for background; see "1.1. VT100 Command Set").

- The VT320 GR character set shift support has been fixed so VT100 graphics characters are displayed properly when mapped into GR.

- The SUB (Control-Z) character now causes the display of a '¿' (reverse question mark) in addition to cancelling an escape sequence.

- Blink attributes now continue to blink when the cursor is hidden.

- The VT100 "Show Cursor" DEC private command no longer causes cursor glitches to be left onscreen when called repeatedly.

* The test used by the ASCII emulators for triggering automatic ZModem downloads has been modified to try to handle all cases correctly.

4.6.2 2/7/00

Features:

* dataComet now offers a keypad panel with buttons linked to keyboard function keys (and corresponding macros, if any); the keypad panel can be opened using the "F" control at the bottom left of the emulator window.

* New default keymapping for "UNIX tn3270" has been added to the "Host menus and function keys" popup menu to make it easier to use UNIX tn3270 sessions to connect indirectly to IBM mainframes. A new "!K\nnn" macro has been added so the standard keymap options can be selected in macros.

* A "!CU" macro has been added to allow opening URLs in macros.

* VT100 User Defined Keys now allow the host application to open URLs and execute dataComet macros directly (see "1.1. VT100 Command Set" for details).

* The "Control Printing..." dialog now includes "Eject page when host turns off stream printing" to allow disabling automatic page feeds when the "end host printing" ESC[4i command sequence is received. This resolves problems caused by applications which repeatedly embed print stream open/close commands on the same page.

Bug Fixes:

* MacOS X Server host sessions are now negotiated so they work cleanly without changing the default CR-LF settings. In addition, control characters such as ^C now work properly.

* The launch macro resource ('CONN' ID=2) resource can now be imbedded in the dataComet application to facilitate distributing copies of dataComet with restricted feature sets. Launch macros no longer crash or hang dataComet if they are executed without a window open.

* 14- and 16-point fonts in emulator windows now appear closer to the left margin when fast drawing is not enabled to improve the appearance of the screen.

* VT100 stream printing now yields to other applications after each page is imaged to help guarantee that print drivers will process print jobs correctly.

* A bug which could lead to hanging when PowerPCs perform X/Y/Z-Modem transfers using Serial connections has been fixed.

* ZModem downloads now accept Start AutoReceive commands (ZRQINIT) from hosts which contain imbedded commands to avoid AutoReceive failures (the imbedded commands are ignored, since they are presumably not relevant in the Mac environment).

* BinHex decoding of downloaded files now works correctly when the first line contains the "(This file..." encoding message.

4.6.1 10/29/99

Bug Fixes:

* The Kerberos data encryption negotiation sequence was fixed so data encryption works reliably rather than presenting garbled data. (Encryption of sent data was working properly; reception of inbound data started one byte early in many cases.)

4.6.1b4 10/1/99

Bug Fixes:

* The code handling MacTCP Domain Name Resolution has been updated to be compatible with MacOS 9.

* The 3270 emulator has been fixed so that Structured Field write commands are handled correctly if a length field is split between two TCP packets.

4.6.1b3 9/23/99

Bug Fixes:

* Changed the 3270 Query Reply Color Background response in another effort to improve compatibility.

4.6.1b2 9/14/99

Bug Fixes:

* The 3270 Query Reply Color Background response has been fixed to use $F0 (Neutral-Black) as the default background response. If the "Control Color..." dialog item "...except Background" is enabled, the 3270 emulator now generates a Query Reply Color response which omits the Background Color capability.

* VT100 stream printing has been fixed so that pages after the first page are always printed; in some cases following pages were omitted. In addition, print streams have been fixed to work correctly when the Print Dialog has been turned off (using the "Control Printing..." dialog item "Show "Print..." Dialog when printing host print streams").

* The XON/XOFF/KILL character fields in the "Control Emulator" dialog have been fixed so that you can use the "delete" key to turn off special handling of these characters easily. In addition, non-numeric characters entered into dialog fields is now screened out when it is not appropriate, and pastes have been fixed so that the dialog paste uses the text from the latest copy command.

4.6.1b1 9/3/99

Bug Fixes:

* dataComet now handles the Applescript "quit" command in a way that will return a value to the calling script before quitting, so scripts using the quit command will continue correctly.

* The Query macro command (!QS) has been fixed to prevent the appearance of junk characters in the user input area; !QQ has been fixed so it now terminates the prompt string correctly.

 * The macro dialog now displays the timeout number for the match case macro command (!z) correctly.

 * 3270 Extended attribute reporting in responses to Read commands has been fixed so that attributes are only returned when requested by the application and default attributes are not reported. User selection of extended attributes (reverse, underscore, and blink) for characters has been fixed so that only one attribute can be applied to a character at once, as required by the 3270 specifications.

 * The 3270 Query Reply Color Background response has been fixed to include the length byte so host programs will interpret it correctly.

A1.2. dataComet Release Notes 4.6b1 - 4.6

This document has information on (select and use "Find..." to go to the section):

Known Bugs in the current version
Release Notes:

4.6 4.6fc2 4.6fc1 4.6b7 4.6b6 4.6b5
4.6b4 4.6b3 4.6b2 4.6b1

Note that with version 4.6, release numbering has been changed to better conform with Apple's standard release numbering system.

4.6 Final Release 5/20/99

Features:

* Wyse-60 function key mapping has been added to the "Host menus and function keys" popup menu.

Bug Fixes:

* Modified the printing routines for better compatibility with the LaserWriter 8.6 driver (in accordance with Apple Technote #1161, 4/19/99), so that the driver is notified that dataComet correctly handles variant Print Record sizes. This may fix occasional crashes which have been observed when using LaserWriter 8.6. In addition, the printing routines now guarantee that the page number is placed within the visible print page (a problem which could result in printing extra pages with some versions of the Epson print drivers).

* Fixed 3270 Pen Detection to handle Space and Null field responses correctly, so that an 0x7E AID is transmitted with SBAs for modified fields and no data.

* Fixed the TFTP server so that it works on PowerPC machines, and added receive file processing so received files can have their file type set from Internet Config and can be launched automatically, and MacBinary and BinHex files can be decoded automatically.

* Added support for the "<ESC>[Png" escape sequence to the ANSI emulator, which is used by some PC-ANSI host applications to display a character from the alternate graphics font. (Note that this usage conflicts directly with the ANSI specification, which reserves this escape sequence for the Tab Clear command: only when Pn > 5 will characters be displayed, otherwise the sequence is assumed to be a valid Tab Clear command.)

4.6fc2 4/26/99

Bug Fixes:

* Fixed a crash on 68K machines caused by an uninitialized variable being referenced when no session had been opened and an alternate terminal type was selected in the "New..." dialog and the dialog subsequently OK'ed.

* The VT100 graphics characters now appear correctly when the Comet PC-ANSI font is selected even when the PC-ANSI terminal type has not been selected.

* The ANSI/VT100 emulator now handles SCO-ANSI color selection escape sequences correctly, and ignores other commands which use "<ESC>[=" as an introducer so they will not leave garbage from incomplete commands on the display screen. See "1.1. VT100 Command Set" for details.

* Added a "Background Color Erase" option in the "Color..." dialog so that background color erase can be disabled.

* The selection is now reset after a Control-Click invokes the Contextual Menu Manager and a selection has been made.

* The Paste command now automatically applies text translation from the Macintosh character set to the host character set when host output translation is selected, so that Copy and Paste using Comet Mona and other Macintosh fonts works seamlessly; formerly you needed to hold down the Shift key to select translation when pasting. Shift-Paste now forces translation (which does not occur when output translation is turned off, e.g., when Comet ISO-Latin-1 is selected), and Option-Paste now suppresses translation.

3279 bug fixes

- Fixed handling of extended stream Write Structured Field packets with "zero" length so that the actual packet length is always used and set properly.

- Fixed a bug which in certain unusual circumstances triggered the FT3270 file transfer routines, causing valid PF key commands to be ignored.

- Fixed a bug which sometimes caused 3279 attribute bytes to appear with an extended attribute (such as underline) set.

- Fixed a bug which caused intermittent reporting of normal characters as APL characters; this occurred in the 3279 emulator when extended reply mode was not selected and a Read Buffer All command was received.

- Fixed a crash which occurred when a 3270 session was closed, was also paged backwards in the scrollback buffer, and dataComet was Quit. The crash was caused by referencing 3270 memory resources which had already been released.

4.6fc1 4/13/99

Features:

* dataComet now supports dialup and other serial connections using Modem and Serial ports added with PowerBook, NuBus, and PCI cards or internal Macintosh modem hardware (as with the iMac). These can be selected from the Serial port list in the "New..." dialog.

Bug Fixes:

* Macro bug fixes and enhancements:

- Global macros are now processed when no windows are open.

- The "dataComet Launch macro" can now be used to execute any macro commands, rather than being limited to executing security configuration commands for Public Kiosk configurations.

- Window changes now cause macro commands to be moved to new context, so that recorded macros work in a natural way. Note that if you are currently using macros to open new sessions, you may need to add "!W}" to the macros after the open if the macros include subsequent commands (which were executed in the current window context, and would now execute in the new window's context).

- Edit window keystrokes are now recorded when "Record actions for macro" is on.

- The state of the menu macro Shift and Option keys are now reset correctly when interpreting macros. Menu items with Shift-Option variants can now be recorded and executed in macros ("CapsLock-Shift-Option" is now required to generate a disable-item macro command when recording).

- Fixed a bug which caused a crash when a global macro was deleted and the frontmost window had no macros defined.

* FT3270 IBM mainframe file transfer bug fixes and enhancements:

- FT3270 downloads now work correctly in the PowerPC version; there was an error in checksum calculations in the C code used with the PowerPC.

- FT3270 now supports automatic download BinHex/MacBinary translation and launching of downloaded documents.

- FT3270 uploads no longer fail when an 0xFF character is contained in the data.

* The "Control Keypad" dialog item "VT220 named FKeys sent without Shift key down" is now set properly (this bug was introduced in 4.6b7).

* The standard VT220 function key definitions used when the "Automatic" Host Menus and Function Keys option is selected now send "<ESC>OT" when F5 is pressed rather than "<ESC>[15~" so the host Print function works correctly with the default definition.

* Font scaling is only enabled when printing to help avoid ugly font scaling in emulator display screens (this problem was introduced by printing fix included in 4.6b7).

4.6b7 3/22/99

Features:

* A number of new Mac <-> 3270 Translation tables have been added to support international applications.

* The "Comet Default" preferences document is now located in the "dataComet Preferences" Folder in the System "Preferences" Folder. User "Documents" and "Sessions" folders are also now located in the "dataComet Preferences" folder, to make upgrading dataComet versions easier and provide compatibility with MacOS X Server's NetBoot capabilities.

* Option-"Open Log..." now selects a file to log all session data transmissions for debugging purposes; this option will provide reliable logs even in cases where crashes occur!

* The VT100/ANSI emulation has a number of improvements and bug fixes:

- Background Color Erase is now supported, so that erased areas are set to the current background color.

- A number of new VT320/ISO-6429/ECMA-48 command sequences are now supported by the emulator: 8-bit control transmission (S7C1T/S8C1T), Erase Char (ECH), Protected-Areas (SPA), DEC Protected-Areas (DECSCA), Send/Receive mode (SRM), Visible/Invisible Cursor (DECTCEM), Character-Position-Absolute (HPA), Cursor-Back-Tab (CBT), Cursor-Character-Absolute (CHA), Cursor-Horizontal-Index (CHT), Line-Position-Absolute (VPA), Next-Line (CNL), Previous-Line (CPL), Repeat (REP), Pan/Scroll-Down (SD), Pan/Scroll-Left (SL), Pan/Scroll-Right (SR), and Pan/Scroll-Up (SU). See "1.1. VT100 Command Set" for the sequences used to invoke these commands.

- New function key mapping options have been added for ANSI emulators in the "Host menus and function keys" popup menu, which now appears in the "Control ASCII Emulator..." dialog as well as the "New..." dialog. (This makes it easier to select function key mappings appropriate for connections to hosts using linux, scoansi, xterm, and at386 terminal types. This option replaces the "Select IBM menus and keymapping" option in the "Control Emulator..." dialog and the "NCSA FKey mapping" option in the "Control Keypad..." dialog.)

Function key options have also been expanded so that 72 function keys can be easily selected: When you press a key or function key button, pressing Shift shifts up 12, pressing Control shifts up 24, and pressing Option sends functions associated with the "Home" and other middle-pad function keys. The shifted state is now promptly reflected by the labels on the function button names on the left hand side of the emulator screen which are displayed when you press the '?'/'M' button.

NOTE that "Command-button" is now used to set button macros rather than "Option-button", and "Command-macro menu" sets menu macros rather than "Option-menu". Also, the "Home" and other middle-pad keys are now mapped in a more "natural" fashion: See "0.1. Shortcuts", which has been updated to reflect these changes in function key mapping.

- The VT100/ANSI emulator now supports Set Graphics Rendition (SGR) commands to set the default foreground (black, "<ESC>[39m") and background (white, "<ESC>[49m") colors.

- ESC and SGR commands which are used to select the PC-ANSI alternate characters were also added. "<ESC><char>" remaps the next character for display when it is greater than 159, where 160 -> 127, 161-191 -> 1-31, and 192-223 -> 128-159. "<ESC>[10m" selects the default font, "<ESC>[11m" allows display of the alternate font characters in positions 0-31, and "<ESC>[12m" selects the alternate font and displays shifts the character into the high range (128-255).

Bug fixes:

* Setting the terminal type when first creating a "New..." session no longer results in a crash (this bug was introduced with the improved color maps support added in 4.6b6, and was caused by a premature attempt to select the window's screen graphics device when it had not yet been identified).

* PC-ANSI graphics characters less than 32 now display properly (this bug was introduced with support for the 3270 extended attributes).

* 3279 emulation bug fixes:

- The 3270 now sends only Start Field orders (rather than Start Field Extended) when extended reply mode has not selected by the host. This caused problems with the RDRLIST command failing to execute keyed commands.

- The 3270 Repeat to Address order now uses the APL translate table to translate characters when the alternate APL character set has been selected using a Set Attribute order; failure to do so was causing some characters to appear incorrectly.

- 3270 fields with extended attributes selected are now drawn correctly when they appear at the end of a line immediately after a field which also had extended attributes (rather than using the attributes associated with the previous field).

* Printing fixes:

- Printing a selection in emulator windows sometimes resulted in a crash during recalculation of the character width table... this is now done after the Print Driver is closed to avoid this problem.

- Printing text windows using monospaced fonts now places words so that they always have a space after the previous word.

- The Comet fonts are now scaled so that when they are printed they are larger and more legible.

- Page range selections made in the "Print..." dialog now work correctly.

- Fonts have been uniformly updated to use a slashed zero (0) rather than a dotted zero, since the dotted zero could be confused with an eight. The new slashed zero is slashed at the bottom to avoid confusion with the slash-oh character (¯), which is slashed in the middle.

4.6b6 2/3/99

Features:

* The IBM 3279 now supports background colors, the Graphics Escape command, and the APL character set. NOTE that you may need to update the color mapping in the "Color..." dialog using the "Default Colors" button to get correct background colors for color 3279 sessions created using earlier versions of dataComet 4.6!

* Session Keepalive and "Reopen session automatically on failure" options have been added to the "Control Session" dialog.

* File Transfer: An "AutoDecode" option has been added to control BinHex and MacBinary decoding of downloaded files. Files containing multiple binhexes (e.g., mailboxes) now download OK, and all binhexes unpack correctly.

* When using VT100/VT220/PC-ANSI emulation the buttons on the left side of the screen now send VT220 Function keys by default rather than VT100 application keypad commands; you can send the VT220 "Find" and other special keys using F1 through F4 and F23 and F24 (see "0.1. Shortcuts"). This makes it easier to use dataComet with the new standard Macintosh keyboards, which lack these keys. In VT100 -> IBM key mode the buttons will send the default IBM PF key sequences.

Bug fixes:

* The IBM 3279 now handles 2-byte long extended stream packets which claim to be of "zero" length correctly rather than crashing.

* In some circumstances the first 3279 screen would be filled with junk characters due to failure to set the NULL character variable before screen initialization occurred. This problem has been fixed.

* IBM 3270 invisible fields now remain hidden on printed output.

* The IBM 3270 PF1 and PF3 key combinations (Control-7 and Control-9) have been fixed; these were broken when Control-attribute options were added in 4.6b1.

* The IBM 3279 now sends the NULL query reply correctly.

* Long session names are now truncated uniformly; variation between the document name and the name in the menu was causing .edit save failures when names were longer than 25 characters.

* The "lines in scrollback buffer" in the "Control Session" dialog has been fixed so that it works correctly.

* The correct alert text is now presented when you launch dataComet, option-key remapping is selected, and the "dataComet Keyboard" was not installed; the text said "Receive" rather giving the instructions for installing the resource.

* Improper placement of the emulator window when the window was placed close to the top of the screen on an alternate monitor and the status bar was not displayed has been fixed; the text window now zooms correctly when located on an alternate monitor.

* Text windows are now positioned below the emulator window by default when the screen is large enough to allow this placement.

* The default print font size is now 10, and the default QuickDraw left margin is now 72 pixels (1 inch) to give best results printing with Courier; the font size menu now includes all font sizes to make it easier to select alternate print font sizes when the current display font does not offer all font sizes. The default text window zoom size is now 512 pixels so the text has an optimal width when printing with the default settings.

* Several minor problems with color map settings have been fixed; the color map is now always set correctly on session open without an additional screen update event (e.g., a window selection), the background screen color is always set correctly without an update, and the VT100 always inherits a VT100 color map (rather than a PC-ANSI color map)

* Fixed the Apple Menu so a disabled line is added between the dataComet items and other Apple Menu items when the Appearance Manager is not present.

4.6b5 12/22/98

Bug fixes:

 * The IBM 3279 Character Set response to a Read Partition-Query command has been fixed so that TSO & ISPF will no longer crash with a divide by zero error (TSO was dividing by the "character set descriptor length" parameter, which as reported by dataComet contained an invalid value of zero).

 * 3279 underscore and reverse extended attributes are no longer drawn in field attribute bytes.

 * A bug in the 68K implementation of the 3279 which caused bad output to be sent to the host has been fixed. (This was introduced when 14-bit address support was added in 4.6b3.)

 * VT100 graphics characters now display correctly when Fast Drawing mode is used.

 * A rare VT100 drawing glitch was fixed; this bug caused extra spaces to be added after zero-width characters from a proportional font were drawn.

  4.6b4 12/17/98

Bug fixes:

 * The 3270 emulator now includes a Summary reply in its response to a Read Partition-Query command. The omission of this field in the response was causing problems with some IBM host applications.

 * The VT100 emulator has been fixed so that VT100 graphics characters included in packets with less than 20 characters now display correctly when a Macintosh font is used (this bug did not appear when using the Comet ISO-Latin-1 or Comet DEC-Multinational fonts or when the graphics characters were included in larger data packets).

 * The 5250 key mode now sends the default keys supported by the AS/400 for VT100 emulation when ANSI/VT emulation is selected. A bug which caused a dataComet to hang when the IBM Clear key or menu item was selected when using ANSI/VT emulation was also fixed.

  4.6b3 12/11/98

Features:

 * An "Alt. ID" field has been added to the "New..."/"Reconfigure Session..." dialog to allow entry of an alternate Telnet Terminal Type.

 * "Disable fallback to 24 X 80 screen" has been added to the "Control Emulator" dialog for the 3270. This option allows you to disable host-selected fallback to the 24 X 80 default screen size from larger screen sizes, so the contents of the scrollback buffer can be preserved in cases where the default screen size is only temporarily reset and not actually used.

 * Two icon flags have been added to the horizontal scrollbar indicator area: a lock icon has been added to show when encryption is on, and a printer icon has been added to show when VT100 passthru printing is on.

Bug fixes:

 * 3279/Extended Stream bugs:

   * 3270 printing has been fixed to eliminate spurious attributes, which appeared as a result of changes in 4.6b1.

   * The Structured Field Erase/Reset command has been fixed.

   * The Read Modified All command is now supported. Due to this bug use of the PA1, PA2, and PA3 keys sometimes led to an X-Clock hang on some systems, requiring a local Reset.

   * 14-bit addresses are now enabled so that custom 3270 sizes > 4096 bytes will work correctly.

   * The buffer size is now reported properly in the Query Usable Area response; the 3270 was always reporting it as 1920 bytes, which caused some host systems to fail to use the full buffer for alternate sizes (even though the row and column sizes were reported correctly).

   * Under certain conditions the 3270 terminal was not automatically resized when it was re-opened after a new terminal size was selected in the "Control Emulator" dialog. It should now always be resized correctly when it is re-opened. The Row and Column options in the ANSI/VT100 Control Emulator dialog are now disabled to prevent resizing while the 3270 is active.

* Pointers to the locked default color map resources are now stripped to 24 bits when running on pre-System-7 24-bit color systems to prevent address errors.

* The "Control Color" dialog now saves old-style color maps if the "Host selects color" option is toggled; if the old map had not been modified, it was lost during the toggle (unless Command-. or Command-Z was used to Revert the color map to its previous settings).

* Command-D now dismisses dialogs which have a "Don't Save" button.

4.6b2 11/14/98

Bug fixes:

* Font settings are now saved when the "Comet Default" document is modified.

* The Appearance Manager and Contextual Menu Manager interfaces are now incorporated into the code so Mac0S 7 launches work correctly if these extensions have not been installed.

* The "Mac {} IBM_37USA+" character map is now fixed so NULL is mapped correctly to 0x00 (rather than 0x20) when "Send Imbedded 3270 Nulls as Blanks" is off.

* A 3278 display bug introduced in 4.6b1 has been fixed; the bug caused the first field in a screen to sometimes be displayed with the wrong attribute. This bug did not affect 3279 displays.

* The backspace key now works when an edit window is full.

* Separate Color map resources are now used rather than saving the map in the 'CONF' resource so session colors saved separately on a per-termtype basis; colors are now updated immediately when they are modified so there is no need to use "Save Configuration..." to make them permanent.

* The Help document on dialogs has been split into two parts.

4.6b1 11/1/98

Features:

*** dataComet now includes Kerberos Authentication and Encryption support for all Telnet sessions using Telnet Plugins.
*** dataComet's user interface has been improved: it now uses the Appearance Manager... and...

* The "New..." dialog has been revised to use popup menu items, and includes Authenticate and Encrypt options to support Kerberos Telnet connections, with a new field which allows you to enter an alternate Kerberos User ID to log on to hosts for which you have a login name which differs from your Kerberos ID... and...

* The configuration dialogs have been revised to make it easier to find and select configuration options; they now use Geneva 10 font, have a more logical arrangement of items and better wording for the option descriptions, and include a dialog bar which allows you to jump to the other configuration dialogs... and...

* Contextual Menu support has been added to provide full compatibility with Apple Data Detectors and other Contextual Menu plugins. The Control-Click "Help" and "Send Selection" features previously implemented in dataComet are now listed in the Contextual Menu brought up by a Control-Click. Control-Clicking on text in an emulator or edit window now sends the selection if one has been made, rather than always sending the word which was clicked.

*** dataComet now supports true IBM 3279 color screens and extended attribute processing (underline, reverse, and blink). The "IBM" menu and macros now include items which allow you to set the attribute for typed characters or the selection range.

* Escape sequences used by SCO-ANSI emulations have been added to the VT100/VT220 emulator to make it possible to use dataComet's VT100 emulation with hosts which expect SCO terminals.

*** "Comet Mona" and "Comet Mona Bold", a Comet font family which provides a fixed-width rendition of the standard Macintosh character set in sizes 8, 9, 12, and 16, are now the default fonts for new sessions; Courier 12 is now the default print font, so that printing will have the highest quality appearance, and good results can be obtained without installation of the Comet fonts in the System Fonts folder. The Comet ALA, PC-ANSI, ISO-Latin-1, and DEC-Multinational fonts are still included to make it possible to get perfect reproduction of host character sets.

* All Comet fonts except "Comet ALA" and "Comet PC-ANSI" now include the "Euro" symbol, replacing the "International currency" symbol.

* The default 3270 Mac <> IBM character mapping has been changed, and now supports all the characters in the IBM ISO-Latin-1

character set. Mappings have been added in the "IBM" menu for the "" (DUP), " " (Field Mark), "..." (Record Separator) keys.

 * A "Selection Word Count..." dialog has been added to the "Edit -> Selection" menu, which can be opened using a new "#" control in edit windows.

 * "Erase EOF when pasting to clear previous contents" has been added to the 3270 Emulator dialog to improve paste functionality. This is now the default.

Bug fixes:

 * A "Set dataComet Fegistration..." menu item has been added to the Apple menu to make the procedure for registering more obvious.

 * The addition of dynamic macro memory allocation in 4.5.2B made it possible to crash if all windows were closed, the last session closed had executed macros, and the next session opened executes macros. This bug has been fixed.

 * "Menu select" macro commands placed in the middle of a macro now now execute in their current place in the macro stream, rather than being appended to the end. E.g., inserting a "Return" using the "ASCII" menu now works as expected if it has been placed in the middle of a macro, rather than sending a Return after the rest of the macro has executed.

 * dataComet no longer sends a Telnet "WILL ECHO" response to request to "DO ECHO" from a host, since this confuses some telnet servers.

 * The Bold Font menu has been fixed so the selected bold font item is correctly noted when a new Font has been selected (this bug was introduced in disables)

 * Color selection and inversion is now performed reliably on secondary monitors.

 * The VT100 emulator now preserves double width and height attributes when host color mapping is on. The "Use host color" option is now TRUE by default.

 * The default color mappings for both the VT100 and IBM3270 emulators have been improved so the default colors are nicer. The 3270 default attribute colors now match the standard defaults for the 3279 extended base color option.

 * Blink attributes now blink when viewing the scrollback buffer.

 * Toggling "Use Host Color" in the "Color" dialog now updates the background color in the frame surrounding the emulator drawing area.

 * The emulator drawing area clipping region has been changed to eliminate character overhangs which (infrequently) left garbage from oversize characters appearing on the right edge of the screen.

 * Download printing of files has been fixed so that it works correctly with print font selections (4.5.1 introduced a bug which made this feature work only when "Use Courier font for printing" was selected). Download printing now works with Z-Modem downloads.

 * Serial printing can now be resumed without closing the window after cancelling the serial print.

 * The edit window now avoids TextEdit "duplicate cursor" images which appeared when a single character selection (at the beginning of a line after a Return) was replaced with another character (or cleared).

 * Text copied in dataComet now pastes correctly into the Standard File dialog name field.

 * YMODEM downloads now work correctly. XMODEM uploads now display the progess indicator correctly. (Note that the download progress indicator does not show the progress, because XMODEM includes no information on the length of the file being downloaded).

 * Horizontal scrollbars now track correctly in the 68K version when the scrollbar thumb is used.

A1.3. dataComet Release Notes 4.43B6 - 4.5.3A

This document has information on (select and use "Find..." to go to the section):

Release Notes:

4.5.3A 8/18/98

Features:

* There's now a Registration dialog to make registering more intuitive.

* dataComet documentation is now listed in the Help menu (under System 6, it's listed in a Documents->Help submenu). The Documents and Sessions menus have been moved to the File menu.

* "Shift-Open" now displays all files in the Get File Dialog and opens them as text, so dataComet can now be used to edit documents such as Apple Modem Scripts or NCSA documents (which are indeed text documents, but are set to a different file type). dataComet no longer adds dataComet window and font size resources to files if they are not dataComet documents (either originally created as dataComet documents, or saved used Option-Save) so that such documents can be viewed without modifying them. You can save the window and font size resources in non-dataComet documents using "Shift-Save" (this is not done automatically due to the low but real risk of Resource ID conflicts).

* Switching windows is now faster; drawing of controls and menus has been optimized.

* The "Find" dialog now has an "Ignore case" option; this is now the default behavior for the "Find" command.

* The "Control Session..." dialog now includes a "Don't Beep" item so you can disable emulator beeps.

* 5250 keys and menus are now available as alternatives to standard 3270 keymapping to make it easier to use the 3270 emulator to connect to IBM AS/400, System/36, and System/38 hosts. You can enable 5250 key-mapping using the "Use IBM 5250 Keymapping and Menus" control in the 3270 "Control Emulator..." dialog.

* "Cursor Select" has been added to the IBM menu and associated with the Option-Tab key to provide this function on the keyboard. Control-Return now performs a Clear to make it easier to execute a Clear on the keyboard.

* A large set of Translation tables have been added to the distribution, including IBM, ISO, and Windows mappings for MacArabic, MacCE, MacCyrillic, MacGreek, MacHebrew, MacPersian, MacRomanian, MacThai, and MacTurkish.

* New indicators have been added to the left of the horizontal scrollbar in emulator windows; the 3270 busy symbol and VT100 LEDs appear here. In addition you can now display the current emulator cursor row and column coordinates in this area, using either the host cursor location or the mouse cursor location (you can control the display of the coordinates using the "Show cursor position" and "Use Mouse position" controls in the "Control Controls..." dialog).

* A macro was added to send the 3270 ATTN key ("!PA").

* The new built-in support for NCSA and Brown document launches from Netscape now also supports Sets, so these documents can be used to open several documents at once. These documents can be edited using "Shift-Open" or by selecting the document in the Sessions menu with the Shift key held down (e.g., "Telnet Set Example" in the Sessions menu).

* The 3270 emulator now supports the Structured Field Query Reply, so that session passthroughs to IBM mainframes which failed when the host (incorrectly) assumed Extended Stream support would be available will now succeed.

* You can now set Leading in edit windows... this feature makes the dataComet on-line documentation much more legible! (The documentation uses the Monaco font, which really needs the additional leading...) You can also set Print leading independently of the screen leading.

* The "Define Macro..." dialog now always uses a 9 pt. font when displaying the macro.

* Horizontal scrollbars in both edit and emulator windows now update the contents as you are scrolling.

* The File Transfer submenu now includes several items from the "Control File Transfer..." dialog to make it easier to change settings on the fly (e.g., "Use BinHex"). These items can be used with edit windows; the settings are applied temporarily to the target upload session when the File "Upload..." command is used to upload an edit window.

Bug fixes:

* Several dialog items which were truncated when displayed using the Chicago font have been resized so they display correctly.

* Document and session names are now displayed correctly in menus when they contain characters such as "!" (which are interpreted by the standard AppendMenu() calls as commands to use special formatting for the menu item).

* Pastes into edit windows are now checked to guarantee that adding the text won't exceed the 32K TextEdit limit, and an alert is presented if this is the case.

* The Translation menu is no longer disabled for edit windows, allowing use of the Option-Translation feature documented in "0.1 Shortcuts".

* When a window is closed and a dialog window becomes the frontmost window, the next frontmost emulator or edit window becomes the key window for the Find and other dialogs.

* In some situations when an emulator window was opened on a second monitor, it would be resized so it had zero width... this side effect from adding horizontal scroll bars and window maximum size constraints has been fixed.

* The IBM 3270 cursor is now hidden when drawing occurs.

* The cursor is now updated promptly when a cursor motion key is held down, rather than not being displayed until the key is released.

* Bugs in the 3270 Alternate screen to Default screen (24 X 80) fallback which cause the screen display to appear incorrectly have been fixed. Also, pressing the Clear key no longer automatically causes the scrollback buffer to be cleared when using an Alternate screen size. The buffer is still cleared if the size changes, since the 3270 buffer display routines can only handle one 3270 screen size.

* Several emulator screen/stream printing bugs have been fixed... Printouts of VT100 scrollback buffers larger than one page may have had garbage appearing at the end, and the last line on a page is no longer duplicated at the top of the next page. VT100 print streams caused some Print drivers (and network printers) to hang due to failure to call PrClosePage() before calling PrCloseDoc(). Printing of emulator screens now works on PowerPCs.

* ZModem upload throughput and reliability have been improved. ZModem now avoids prolonged "Sync" states which sometimes occurred when slightly out-of-date ACK packets from the host were counted as an error and NAK'ed. The default ZModem Upload Window is now set to 4096 by default to avoid host buffer overflows; you may be able to improve performance by changing this to 0, but be cautious... some hosts (e.g., UNIX hosts with small tty input buffers) may crash due to buffer overflows on Telnet ZModem transfers! (This generally only occurs during Binary uploads.)

* The PowerPC version is now compiled with the Metrowerks Global Level 1 register optimization off. This option was found to cause some odd failures in code generation.

4.5.2B 6/16/98

Features:

* dataComet is now distributed as a fat binary which offers native PowerPC support in addition to including 68000 code for older Macs.

* dataComet can now handle Netscape launches directly, so the dataComet-NCSA and dataComet-Brown applications are no longer included in the distribution. (This means NCSA and Brown users can now try out dataComet without confusion from having the document icons change to dataComet icons, and existing NCSA and Brown documents will continue to work normally without deleting the dataComet-NCSA and dataComet-Brown applications.)

* A "Sessions" submenu has been added in Apple menu to provide easy opening of emulator sessions. dataComet now checks the "Sessions" folder when performing URL or Netscape launches for existing documents with the same name, so session configurations can be retained between browser launches.

* Horizontal scrollbars have been added to emulator and edit windows. Edit windows feature controls next to the horizontal scrollbar to allow easy execution of text reformatting commands using the mouse. The "Control Controls..." dialog now includes "Show horizontal scrollbar at bottom of window" so you can hide the horizontal scrollbar in emulator windows.

* "Option-click sends cursor motion key sequences" has been added to the "Control Global..." dialog; this setting is now on by

default. Formerly cursor-key sequences were sent whenever the mouse was clicked in an emulator window; now you need to hold down the Option key to send these commands when in ASCII emulator windows. This option allows you to switch this behavior so a simple click will perform cursor positioning.

 * An AppleScript "targetwindow" command has been added. This command selects a target window for dataComet AppleScript commands, rather than using whatever window is frontmost, so AppleScript commands will be executed in that window context even if the front window changes.

 * An alert was added to remind the user that selecting non-standard font leading and width options in emulator windows slows down drawing performance.

 * An alert was added to note that some menu commands are not executed when a window has been miniaturized (the commands are ignored in order to help avoid the possibility of mistakes caused by failure to notice that an iconified window is actually topmost).

Bug fixes:

 * The IBM 3270 emulator now handles shifts back to 24X80 mode from larger screen sizes. This bug resulted in confused displays when the host application selected the smaller screen size.

 * Macro dialog fixes: The "Rename" button is now enabled when no macro exists yet for an emulator button; The "Set" button is now enabled without changing a macro (making it easier to configure empty key macros); selecting the "Global" check box now prompts an alert to save changes if a macro has been modified rather than updating a macro automatically. Renaming an emulator macro button twice no longer causes a crash. Assigning macros to buttons now results in correct display immediately when a session is configured with "Only one session per document" off (rather than being displayed correctly only after the window is closed and re-opened).

 * Macro handling has been modified so that the queue is resized automatically when macros add commands to execute which exceed the current queue size. This also saves a lot of memory, since each window saves up to 32K which had been allocated for the macro queue in previous versions.

 * The "Macro" menu is now always rebuilt so it appears after the "Control" menu after adding a menu macro to the Macro menu.

 * Pressing "Return" in the "Configure Session" dialog now works as an "OK" rather than being ignored.

 * PPP connections are no longer opened automatically as soon as a session document is opened (this occurred even when the session was set not to connect automatically on open; this premature PPP open resulted from resolving the host name before it was necessary).

 * Using Control-"Menu select" to get help no longer causes a crash under System 6.

 * The File menu item "Print now" is now disabled unless applicable (i.e., when VT100 a print stream has accumulated without a page eject).

 * Outdated items for setting MacTCP options used with obsolete versions of MacTCP were removed from the "Control Global..." dialog.

4.5.1 5/4/98

Features:

 * dataComet 4.5.1 offers a simplified registration procedure. Registered users will now receive via plaintext email a registration code which sets the registration when it is selected and the menu command Shift-"About dataComet..." is executed. The previous method of registering using a dataComet document still works; the new method will make it easier for users to receive registrations when they receive email on a host rather than downloaded to their Macintosh.

 * A session timer is now displayed next to the packet counters. The display of the timer is controlled in the "Control Controls..." dialog.

 * A "National" submenu has been added to the "Control" menu to set National Replacement Character sets (this does not yet apply to IBM 3270 emulators).

 * The "Find..." dialog now reverses the search or replace direction when the shift key is pressed.

 * An 8-point font has been added to the "Comet ISO-Latin-1" font family to make it possible to display 132-column screens on smaller monitors. A native Macintosh version of this font has also been added ("Comet Mona").

Bug fixes:

 * The error message "Application predates configuration version" has been removed, since it makes reversion to an earlier

version a hassle.

 * Control-Clicking on the menu bar to get help on a menu item no longer brings up "Shortcuts" before user can get to the menu. (This worked, but the Control key had to be pressed after clicking on the menu bar.)

 * Native MacTCP sessions can now be reopened after they have been closed from the host end of the connection (as opposed to a "Close session" command). (This bug was not present under OT/MacTCP.)

 * Macros generated using the Record Macro feature now work correctly when used with an IBM 3270 host. This bug was introduced when 3270 translation tables were added.

 * The "Control" submenu "Bold Font" option "Use Normal Font" is now saved correctly in the window's font configuration.

 * The "Replace All" command in the "Find..." dialog now quits reliably after one time around the text in an edit window.

 * Selections in the emulator window which start on the bottom line and include the last character are now inverted properly; previously the selection was copied properly, but the selection was not displayed if the screen was scrolled so only the first line appeared. Also, selections made downward from the far right column of a screen row now add a Carriage Return as the first character when a "Copy" command is executed.

 * The emulator cursor is now updated promptly when the emulator screen is not the frontmost screen, so you don't have to bring the screen up to see the current location of the cursor. The cursor blink is now synchronized with emulator blink field blinking.

 * Closing an unsaved "Untitled" window no longer changes the window position and font/size settings of the "Comet Default" document, so new windows no longer inherit these changes.

4.50 1/29/98

Features:

 * The "Bold Font" submenu now allows you to select "None" as an option to avoid bolding, which may draw relatively slowly if a standard Macintosh font is selected.

 * The VT100 emulators now map the MacOS 8 "VT100" font graphics character symbols automatically when this font is selected without using a Comet font.

 * A "CharcoalMenus" resource file has been added so that menu items line up properly under MacOS 8.

Bug fixes:

 * Prior to opening the Mac standard Select Color dialog the amount of memory available is tested to avoid crashes due to out-of-memory conditions.

 * When using MacTCP new host data was sometimes written to the screen when a window was scrolled. The scroll alert should now always alert you to scroll to the end of the buffer prior to screen updates, which should only occur after you have scrolled to the end.

 * Page sizes should now be correctly initialized when using VT100 print streams with QuickDraw printing, correcting a bug which printed pages with only one line of text. In addition, selecting an alternate print font should work correctly under all circumstances (formerly Courier was being substituted for the selected font in many cases). The serial print Top margin item in the "Control Printing..." dialog is now updated and saved correctly when it is modified.

 * The cursor is now reset to an arrow when it's moved off the left hand side of the emulator screen, correcting a bug in which it was left as a text selection cursor if "Show cursor-buttons on the left side" was not selected in the "Control Controls..." dialog.

 * A separate font translation configuration setting is now saved so that transitions from TN3270 to VT100 sessions will no longer produce junk screens caused by inapplicable translation table settings.

 * Resources in the "Fonts" folder are now left in the beginning of the resource chain so that international menu and dialog resources can be dropped in the Fonts folder rather than embedded in the application for maximum flexibility.

4.50B1 11/28/97

Features:

* X/Y/Z-Modem file transfers are now supported, with BinHex and MacBinary file conversion and automatic launching of downloaded files using Internet Config File Mappings. Macros have been added to support Z-Modem file transfer: '!fFfoldername' to set the download folder, and '!fUfilename' to transmit a file.

* Internet Config is supported directly, so that it's no longer necessary to install ICeTEe to resolve URLs in dataComet windows.

* The Find dialog is now modeless and allows you to enter both the Find and Replace strings. It also includes buttons which allow you to perform "Replace/Find", "Replace All", and "Undo" operations (Undo does not undo "Replace All" changes).

* The VT100 and PC-ANSI emulators now support VT220 commands which allow the host to set the PFKeys (User Definable Keys, or UDK). The UDK commands can also be used to independently set the labels and macros associated with the buttons in the button bar and the left hand side of the screen.

* The VT100 emulator now supports displaying and setting an underline color using the "Extended" color mappings control in the Color Dialog... NOTE that if an older color VT100 session now displays underlined fields incorrectly (e.g., black on black!), updating the "Extended" color settings will fix the problem.

* The "Control Print..." dialog now allows you to set top and bottom margins for QuickDraw printing. (Note: the right margin field does not clip the drawing; it is used only to center the page number).

Bug fixes:

* dataComet's timers no longer rely on a Macintosh Vertical Blanking Retrace (VBL) routine, since this routine fails to keep time correctly under OS8 (and must be removed anyway to port dataComet to the PowerPC).

* Using "Control-Menu Select" to get help no longer causes crashes when items in the "Edit Selection" menu are selected (the memory allocated for the names is now longer to avoid overruns).

* TFTP has been fixed so that turning off the server no longer causes an infinitely repeating error message ("no buffer return") under OS8.

* The Telnet layer no longer reports errors in Telnet terminal type negotiation (since OCLC negotiations always fail...).

* The File menu "Open..." dialog now shows all documents by rather than only dataComet documents, so it's easier to open text documents created by other applications.

* The Clipboard is now updated correctly when dialog items are cut or copied. You can now use Command-A to "Select All" in dialogs.

* Text wrapping in edit windows using the Edit menu command "Add Returns" has been fixed so it no longer replaces the first Carriage Return with a Space if the first character is non-blank.

* Cursor motion in edit windows has been fixed so the text cursor moves up and down correctly from the last line when it contains only a Carriage Return and no text thereafter.

* Edit window printing no longer adds a leading blank line on the first page of printed output.

* "Record macros..." has been fixed so that a rare condition is avoided where the host returned output before the sent data was recorded for automatic match generation, resulting in the generation of a match-string which fails to work.

* Using Enter to send text from an edit window to an emulator window now sends the selection to the host when Key Macros are turned off in the emulator window, rather than pasting it at the end of the edit window itself. Enter now sends the whole paragraph, including preceding lines, rather than just the text on and below the line containing the selection.

* Bold characters are now drawn for Macintosh font families when color is on.

* An error affecting the drawing of screens when scrolling in the scrollback buffer has been fixed, so that incorrect characters no longer appear on the screen. The problem occurred due to a bad blank count accumulating when fonts needed to be switched from a type which has to be clipped for drawing (e.g., Monaco Bold) to one which does not (e.g., Monaco), which could result in the failure to erase or draw a character position at the end of a field.

* Likewise, a problem where garbage is left from previously drawn but not-fully-erased characters on the left hand side of characters which require clipping has been fixed.

* 3270 session character translation is reset to default ASCII when IBM 3270 -> ASCII linemode fallback occurs so ASCII characters will display correctly while in linemode.

4.43B8 9/15/97

Bug fixes:

 * A bug afflicted 4.43B6 which allowed a junk "global key macro" to be "allocated" without being zeroed, which could cause a Type 1 Bus Error crash if 1) a key pressed matched the "key code" in the "key macro" and 2) the "key macro" also had a "pointer" to a "macro" to execute which contained an odd address. You might also have gotten "lucky" and execute the "macro" residing at, say, address 0.

 * The CopyPaste utility now works with dataComet, which now copies the TextEdit Scrap to the Application Scrap with every cut or copy. "Copy" commands used in QuickKeys macros should also now work correctly. You can turn this off if you like using the "Control Global..." option "Zero Scrap" if you wish to conserve memory. In addition, the scrap is no longer "lost" if you "pass through" dataComet with a TEXT scrap in either mode (the scrap was being zeroed on entry but was not being updated on exit unless it had been modified).

4.43B7 9/3/97

Attempted Bug fixes:

 * The startup code sequence was changed somewhat in an attempt to remedy mysterious crashing problems with 4.43B6 (evidently caused by the key macro bug noted above, fixed in 4.43B8).

4.43B6 9/1/97

Features:

 * NEW HELP FEATURE! "Control-Command-Key", "Control-Mouse Click", or "Control-Menu Select" will automatically open the relevant dataComet documentation and search for the menu name, button name, or dialog text item selected.

 * INTERNATIONALIZATION: dataComet 4.43B6 stores all string resources in Macintosh resources so they can be readily translated into languages other than English; see "A5. Internationalizing dC" for more information.

 * SOCKS: The "Configure Session..." dialog now allows you to specify a SOCKS V4 proxy for Telnet/TN3270 connections.

 * MODELESS DIALOGS: All dialogs except "Configure Session" have been made modeless, including the "Control Color..." and "Define Macro..." dialogs! Setting colors is now much easier than in previous versions of dataComet.

 * You can now set global key macros and menu macros using the "Define Macro..." dialog; these macros are saved in the "Comet Default" document, and work in all windows. Macros defined for a particular window will supersede the global macros.

 * You can now add user-defined macros to the "Macros" menu as named menu items.

 * "Command-Mouse Click" in emulator windows will now select a word and resolve it as a URL through Internet Config; note you MUST install ICeTEe to support this feature.

 * "Control-Mouse Click" in emulator windows will now perform an IBM light pen selection, or if that's not appropriate, perform a "copy word/paste/CR" operation (which works very well with host application command interfaces that expect words as commands and list them separately on-screen!).

 * Translation of "foreign" characters using standard Mac keyboard layouts now works correctly when using either the Comet-Fonts or standard Macintosh fonts. Selecting a new font automatically selects the correct option for "Translation"; you can translate from the Macintosh character set to a session's selected character set by using "Shift-Paste". Using the Enter key to send text to a host from an edit window with a Macintosh-native font will cause it to be automatically translated to the target window's character set.

 * Bold fonts are automatically selected when a font is selected using the "Font ->" submenu; if no font named "<Fontname> Bold" exists, QuickDraw bolding is used with the selected font, using dataComet's automatic character cell clipping, which will draw more slowly, but will allow the use of any font. You can still select alternate bold fonts manually using the "Bold Font ->" submenu.

 * New macros:

   "!AS" performs an IBM light pen operation on the field at the mouse position;
   "!As" performs an IBM light pen operation on the field at the cursor position.

   "!CV" and "!Cv" allow you to control the VT100 auto-print mode locally.

"!Eg" go to mouse location for replacing single click.

"!FD" now prints the selection using Serial Printing;
"!Fd" now does a form feed.

"!WA" opens items in the Apple menu by name.

The "Define Macro..." modeless dialog now allows you to enter menu items directly from the menus using the mouse while you are editing a macro.

* The "Control Global" dialog now include two new options, "Open "Comet Default" on launch" and "Clear scrollback buffers automatically".

* The "Control Printing..." dialog now allows you to select Serial Printing as a global default, and also set the page length, top offset in lines, and right margin in characters for serial printing. Serial printing now also adds page numbers.

* "Shift-Option-Page Up" now automatically deletes all spaces and tabs in the selected text of an edit window.

* "Shift-Option-Page Down" now inserts '>' characters in the selected text of an edit window.

* "Option-Add Returns" (Option-/) now allows you to set edit windows so that TextEdit's automatic line-wrapping is turned off; the text is shifted automatically so that the cursor will be visible as you move through the text (there is however still no horizontal scrollbar). This makes the edit windows much more useful for editing scripts.

* The text selection is now preserved after an edit window is closed, so that the selection appears in the same place when it is re-opened.

* The IBM 3278 emulator now indicates insert mode by changing the cursor to a vertical bar, and indicates the "X SYSTEM" wait state by swapping between a block and underline cursor (using the opposite of your preference), rather than displaying "HOST BUSY" in the control bar.

* Registered versions of dataComet can have a graphic displayed rather than the standard splash screen (this graphic is stored as the 'PICT' 128 resource in the application; it will be displayed in the window 'WIND' 128 if it is defined, in 'WIND' 0 if it is not).

Bug Fixes:

* VT100 background and foreground colors are now set correctly when a single character is drawn.

* The DEC-Multinational font now includes a 16 point font; the 16 point Bold fonts for DEC-Multinational Bold and ISO-Latin-1 Bold now have international characters properly bolded.

* Serial printing wraps edit window text correctly, and inserts three spaces for each Tab character.

* The print page count is no longer automatically reset whenever a new print is performed; "Shift-Print Page Now" allows you to reset the page number without causing page eject.

* TFTP uploads now work correctly; large uploads crashed due to the failure of some *very* old PC/IP code to allocate a large enough buffer.

* The stack size has been increased from 40K to 64K to help avoid situations where the stack overwrites the Macintosh heap (which contains the application's code and data, so this can be very bad!). This sometimes causes an ID=28 error when it occurs; note that the "Stack Sniffer" which generates an ID=28 error only checks for heap collisions every 1/60 second, so heap collisions can occur without being detected.

A1.4. dataComet Release Notes 4.40 - 4.43B5

This document has information on (select and use "Find..." to go to the section):

Release Notes:

4.43B5 12/14/96

Bug Fixes:

* The cursor no longer disappears when paging in the emulator window and Fast Drawing is on.

* The 3270 PF Shift state is no longer set incorrectly when the PF key is entered with NO Shift after ordinary characters are entered with the Shift key down.

* IBM 3270 sessions will no longer lock in "HOST BUSY" mode (requiring an IBM "Reset" menu command to continue) when a Telnet Timing Mark is received (some implementations of TCP/IP on IBM mainframes use this as a session keepalive, so this would occur after a session had been left idle about 10 minutes). (This problem was introduced with the addition of 3270 -> ASCII fallback mode in 4.43B4.)

* ASCII emulator sessions will now present VT graphics characters even when the selected font does not contain them (e.g., PC-ANSI or other Mac fonts). Support for VT300 mode character set selection control sequences has been added so that alternate character sets will be displayed correctly (LS1R, LS2, LS2R, LS3, SS2, SS3).

* You can now enter ^M (using Control-M) to enter CR in dialog text items without the dialog automatically taking the Control-M as an return meaning "OK".

* You can now paste into dialog items using the menu item as well as the menu item key equivalent.

* If "Use Command Font" is not checked in the Macro dialogs, buttons will produce the correct macro strings rather than "junk" characters (which map into symbols in the "Comet-Chicago" font. If "Use Command Font" is checked and the "Comet-Chicago" font has not been installed in the Fonts folder, the user is prompted to install the font when the Macro dialog appears.

* The IBM 3270 emulator will no longer report an error when an empty selection is pasted.

* The "Copy Screen" option in the "Control Global..." dialog is now OFF by default so that executing a macro which performs a click-word-copy-paste won't yield huge amounts of screen junk when you click on a blank and get a zero-length selection.

4.43B4 11/12/96

Features:

* Added a "Do Blink" item to the "Control ASCII Emulator..." dialog, which allows you to disable blinking.

* The default application size has been increased to 1.5MB from 1MB to make more space available for text documents and multiple sessions with scrollback buffers. This is for the sake of overall usability; dataComet can still run in 600K.

* The PC-ANSI font now includes the a 12-point font; in addition, the PC-ANSI special graphics characters have been added to the fonts (e.g., Carriage Returns appear as musical note symbols!).

* The ISO-Latin-1 font now includes a 16-point font.

Bug Fixes:

* The "Control Global" dialog option "Quit automatically when all windows closed" now works correctly with unregistered copies.

* The VT220 function keys at the top of the extended keyboard are now mapped by default so that F1 -> F1, F2 -> F2, ..., F15 -> F15, Shift-F1 -> F13, Shift-F2 -> F14, ..., Shift-F8 -> F20, rather than the old ("NCSA standard") mapping with F1 -> F6, etc., in order to avoid needless confusion and mystification.

* The Clipboard is now updated properly after copying from an emulator screen and switching to another application. (dataComet was failing to perform a SystemEdit() call when an emulator screen copies was performed, so sometimes MultiFinder failed to note that the System Clipboard needed to be updated.)

* The AppleScript dataComet "copy" command now waits for up to 45 seconds for dataComet macros executing in the frontmost session to be completed before copying the window selection to try to guarantee that select/copy macro scripts will work smoothly. NOTE that during this wait your whole system will have to wait for the loop to complete; if you're using a complicated macro to display and select text, it's best to check whether the "status" of a session contains "Executing" before performing a copy; this way you can be absolutely certain that complex selection macros will copy the selection you really want.

* The Telnet "Local Echo" command should now always provide local display; ASCII Telnet sessions now ignore a WILL ECHO when this is selected and perform Local Echo anyway (sessions with Lexis failed to display characters because the host was responding WILL ECHO when sent the DON'T ECHO, subverting the negotiation process).

* Default ASCII character translation tables are now reset to avoid junk characters appearing after dropping back into VT100 from 3270 mode.

* PC-ANSI and VT220 ANSI host color mapping has been fixed so that the background color is set correctly. Reversed fields are now reversed correctly when host color mapping is on. The default ANSI color maps have been improved so that they are more legible and display correctly in 16-color Monitor mode.

* Two macro commands were added to allow more flexible color mapping for those who use multiple monitors ("!Ck" guarantees the best color match available on the current display--see "A0. Problem Solving"; "!CK" uses the best match on the main monitor, the default).

* VT100 printing now passes Escape sequences (other than End Print Mode) along to the printer rather than discarding them. VT100 print mode is now reset when a session is reset (Shift-Clear Buffer) or closed so that the session will not remain stuck in Print mode if the host fails to turn it off.

* Scrolling in edit windows now scrolls smoothly rather than jumping by half pages to be more typically Macish. Using "Shift-Cursor Down" or "Shift-Cursor Right" to extend the text selection in an edit window now scrolls when it passes the bottom of the window rather than remaining fixed.

4.43B3 9/3/96

Features:

* Option-Copy now performs a "Copy Table" command, so it is no longer necessary to toggle the Table mode. (Shift-Option-Copy is now used to set the contents of the Clipboard to a string.)

* NOTE that the pressing the Enter key in a text window now automatically sends text to the next frontmost emulator window (holding down the Option key is no longer required; this makes text windows work just like a session's .edit window).

Bug Fixes:

* IBM 3270 screens now draw correctly when using fonts other than the Comet fonts. Attribute bytes which corresponded to zero width characters in other fonts (e.g., Character 0 in the Monaco font) were being interpreted as diacritics, so that an additional space was added after the attribute at the beginning of a 3270 field.

* Pressing Shift-F1 through Shift-F15 when using the 3270 emulator on an extended keyboard now sends a PF key shifted up by 12.

* VT100 stream printing now maintains the page count properly.

* If you copy a selection in a dialog it will now always be copied to the Clipboard when you switch applications (this was not occurring if only the dialog item had been copied).

* Serial connections no longer execute the connection macro twice if the Session option "Open session without terminal type negotiation" is turned on.

* If Domain Name resolution takes longer than three seconds, a window now informs you that you're "Waiting for MacTCP to resolve domain name...".

* Selecting the "Log session in..." menu item to turn off logging now causes the current screen to be appended to the log.

* The Font selected for printing (using Shift-Font) is now saved in the session document.

* Scrolling delays when paging have again been adjusted for optimal usability.

4.43B2 8/20/96

Bug Fixes:

* The "!CB" shield window macro (used with kiosk applications) now works correctly when placed in the "Application Launch" macro. The "Macro" menu "Set Launch macro..." is now named "Set dataComet Launch macro..." to avoid ambiguity.

* TN3270 sessions now revert to ASCII line mode whenever the Telnet options governing TN3270 now longer apply. This allows sessions made through an SNS/TCP linemode connection to go into 3278 mode and then fall back correctly.

* The "Window" menu item "Close window" no longer waits for the session to completely close before returning control to the user. This could result in delays if the host failed to close a session promptly.

* Selections >32K in size are no longer truncated when you switch to another application. The selection is also now inverted correctly when a selection is made; sometimes "Select all" would fail to invert the screen in windows with more than 2000 lines.

* Scrolling by lines when extending a selection in an ASCII emulator window now scrolls as fast as possible rather than having a delay if paging had taken place.

4.43B 7/31/96

Features:

* The splash screen now defaults to a 5-second additional delay for unregistered copies rather than 25 to address complaints about the splash screen. To remind users that registration is required, unregistered copies of dataComet now automatically allocate the first window slot to the "About dataComet" window, which cannot be altered or closed. Registering dataComet will free this window slot.

* MacTCP is now configured to poll MacTCP for new data rather than waiting for it to upcall. This may provide better interactive performance in situations where some MacTCP Extensions deliver "sluggish" performance with the asynchronous MacTCP Read calls which dataComet has used in the past. You can turn on the asynchronous call interface by turning off the "Control Global..." "Poll" dialog item (under "MacTCP/OT bug workarounds").

* The Macintosh cursor in the emulator window is now a standard Macintosh text cursor by default, in order to achieve a more consistent Macintosh look-and-feel. You can select the underscore cursor by turning off the "Control Global..." dialog item "Use text cursor only".

* The window title is enclosed in parentheses to indicate that a session is closed.

* You can select by whole lines in the emulator window by holding the Option key down while making the selection.

* "Option-New" now clones the topmost document and opens it.

* Character translation tables are now supported (with the same format as NCSA's); a "Translation" sub-menu has been added to the "Control" menu to allow selection of the tables.

* You can now select VT100 National replacement character (NRC) mapping for ISO-Latin-1 or Macintosh character sets (e.g., Monaco) by using a macro.

* All ASCII emulators now have an option to let the host select ANSI color mapping; the option is set using the "Use host color" item in the "Control Color..." dialog. A "Default" button has been also been added to the "Control Color..." dialog.

* Font width/leading control: you can now set the font width and leading (additional spacing for each line) using the Control menu "Leading" and "Width" submenus. This allows you to control the width and height of proportional fonts, and to make fixed width fonts more compact or more legible (with considerably slower drawing speed).

* Print font/size control: you can now select the font and font size used for printing by holding down the Shift key while selecting the Control menu items "Font" and "Size". A '>' character indicates the selected print font and size.

* Printed text in edit windows is now aligned correctly when a fixed-width font is used on a LaserWriter.

* "Show 'Print...' dialog when printing host print streams" has been added to the "Control Print..." dialog to control presentation of the Macintosh Print Dialog when QuickDraw printing is selected and the host prints using VT100 print streams.

This is now enabled by default.

 * You can now save VT100 print streams to a file by holding down the Shift key while selecting the "Open Log..." menu item.

 * You can now set the ASCII emulators to allow an ASCII Backspace to wrap back and up one line using the "Control Emulator..." dialog item "BS wraps".

 * A '!qa' macro allows you to put up an alert or 25th line notice.

Bug Fixes:

 *** IMPORTANT FIX: When a dataComet document with a higher version number for the configuration data is launched, dataComet 4.42 erroneously puts up an error message stating "Your document is damaged, using default" and ignores the document. This has been fixed in 4.43.

   Note that this will require that users upgrade to 4.43 to obtain configuration settings from 4.43 documents, so site licensees who redistribute documents need to make them using 4.42 or update users to 4.43; sorry for the inconvenience.

 * A failure to reset a timer properly has been corrected; this could cause an infinite loop if a wait for a match succeeded in a very brief interval after the time elapsed but before the timer was reset.

 * "Execute Selection" in the Selection menu now executes properly rather than being ignored when a macro is executed (using Shift-Enter).

 * Several macros have been fixed to use the current context rather than the front window's context when executing so that they will execute reliably when a window is not frontmost. This affected scripted menu execution and the selection macros.

 * Telnet socket specifications using spaces or colons now work correctly with decimal addresses (e.g., "123.88.22.1:23" or "123.88.22.1 23"). The IP address in the "Telnet" menu is now updated properly when the address is changed.

 * The Session menu "Abort..." command is now enabled when a session has been opened but a connection has not yet been made.

 * The ASCII emulators now cancel any current escape sequence and start a new escape sequence when an <ESC> character is received. This resulted (fairly rarely) in confused displays, particularly unexecuted escape sequences which would appear at unexpected places on the display (e.g., "[23;1H").

 * The ANSI default color mapping for background intense colors is now the same as the background normal colors so that ANSI displays are more legible. (The background intense color settings are still set separately.)

 * The "VT220 keys sent without shift down" item has been added to the "Control Keypad" dialog when IBM keymapping mode is used with the VT100/220 emulator.

 * The beep should no longer sound improperly (as if new data had been received) when dataComet is in the background and a session is iconified.

 * Fonts: ^G has been added to the fonts from which it was missing. The ISO Latin-1 font has been fixed so that the "^o" character appears as a "caret-o" rather than being cut off at the top so it appeared to be an umlaut.

 * The "Control Global..." configuration items are now updated correctly when dataComet is quit in all instances; they were not being updated if dataComet quit automatically as a result of a window close.

 * WaitNextEvent() is now called while the splash screen is displayed so the clock and other applications will get background cycles.

 * Selecting a window in the "Window" menu no longer toggles between the emulator and edit windows to avoid confusion when executing macros.

 * Paging now pauses after the first page ONLY rather than waiting 1/3 second per screen as in 4.42.

 * A beep now sounds when a key is pressed in an emulator window and the connection is not open.

 * The zoomed page width is now set to 540 pixels rather than 580 so that a printed copy of a zoomed page fits properly on the printed page.

 * The scrollbar in a .edit window is now deactivated correctly when the window is zoomed automatically on a document launch. The scrollbar in an emulator window is now reset correctly when a "Clear buffer" command is used.

4.42 5/19/96

Features:

* Triggers: The '!z\255' match case macro can now be used to configure triggers for use with MUDS and other applications by terminating the cases with '!Z\001'. See the document on "Macros".

* You can now add buttons to the top button bar by holding down the Option key while clicking the mouse in the shaded area. You can disable a button by Option-clicking on it and setting the Title to an empty string. Up to 24 buttons can be configured in the button bar.

* Paging in windows is now limited to 3 pages per second to make it easier to scan the pages as they pass. This limit only applies when the mouse is used; menu paging goes as fast as possible.

* Edit windows now page rather than just scrolling when the mouse is pulled far up (or down) when performing a mouse-down and drag to select text, so this functions the same as it does with the emulator windows.

* Option-Clicking in an emulator window now resets the selection range.

* An option has been added to the "Set keypad..." dialog which allows the 6 VT220 keys to be sent without holding down the Shift key (and the Shift key produces the default Apple GUI behavior, e.g., "Page up").

* Holding down the Shift key while selecting the Edit menu item "Record Session" now performs literal session logging into the sessions's .edit window for debugging applications (like the "!CL" macro).

* The 3270 emulation performs automatic paging when you use Paste or Command-Enter so you can paste whole documents rather than only a single page of text, e.g., when using INPUT mode with XEDIT. An Enter is performed whenever the cursor wraps to the top. (Note that you will still need to "Add Returns" to make sure that TextEdit text is wrapped before pasting).

* The "Log erase" option was added to the "Control Emulator (ASCII)" dialog to allow partially erased lines to be logged in the scrollback buffer.

Bug Fixes:

* Selecting the terminal type no longer causes a crash (this was introduced in 4.41).

* NOTE: the "Close Window" and "Close Session" command-key equivalents have been switched so that "Close Window" uses the standard Command-W rather than Command-\.

* A case where switching VT100 screen sizes from 80 to 132 columns could cause a crash when using fast drawing has been fixed.

* VT100 and H19 (VT52) scrollback buffering now includes all lines which are deleted using the 'J' "Erase in Display" commands when only part of the screen is erased. This enhances performance with paging in PINE.

* The IBM 3270 Erase All Unprotected command now erases all fields rather than just one field. The "Erase Input" command works correctly again, and now also repositions the cursor to the beginning of the current field after erasing it. "Option-Erase Input" erases ALL unprotected characters on the display.

* Mouse clicks in the emulator window no longer select a character when the mouse moves very slightly (this occurred at the edge of a character cell).

* The default setting for mapping Escape to '`' is now off. The default setting for Scrollback buffering in the "Control Session" macro is now 0 (limited only by memory available).

* Delete characters sent by ASCII hosts are ignored.

* All telnet sessions now try to negotiate Telnet window size when a connection is made.

* Setting "8-bit characters" in the Telnet menu no longer causes Telnet binary mode to be negotiated with the host. This caused confusing results with some hosts. NOTE that UNIX hosts will now need to be configured to pass 8-bit characters (see the document on "Emulators").

* Quickdraw printing routines now call the Close routines even when the Open routines fail to guarantee that all memory associated with a print call is released in the event of a failure.

* QuickDraw printing routines now print "reverse" emulator fields correctly rather than leaving them blank on an ImageWriter.

* Serial printing now wraps the lines correctly when "Print Screen" is executed in an emulator window without a selection.

* Serial printing now avoids a condition where the Printer port was erroneously found to be busy, leading to a dialog to close the existing *network* connection. Closing the connection at this point would close a Telnet connection.

* dataComet no longer presents an error message stating "No serial configuration update" the first time it is launched on a machine.

* To help guarantee international menu key compatibility both words of the KeyTrans() result are checked.

* The menu items for Cut, Copy, and Paste now work correctly with the "Set key macro..." and "Set macro..." dialogs when they are selected from the menu as well as when executed via a Command-X, Command-C, or Command-V.

4.41 -- please upgrade to this version! 4/2/96

Features:

* dataComet now supports AppleScript! See the document on AppleScript for more information.

* You can now send meta-characters using "Control-(Shift-Option)" key combinations.

* Added text window commands: "Option-Copy", which queries the user for text with which to set the clipboard, "Option-Paste", which does a search before pasting ("Repeat Paste"), and "Option-Shift-Paste", which does a "Replace all" operation.

* The "Macros" menu command "Shift-Record" records a session without generating match strings, which don't work well with fixed-screen formats (e.g. IBM 3270 displays).

* Scrolling is now turned off automatically after one error alert that there's not enough memory available to append text to the buffer; this avoids multiple error alerts.

* The ASCII "!CL" show literal mode now also logs in the .edit window the characters sent to the host by the user (as does the IBM literal mode). The .edit window now automatically deletes the text at its top when it runs out of space to add and literal mode is in use, so that debugging host interactions using literal mode is easier.

Bug Fixes:

*** IMPORTANT FIX: MacTCP sessions closed by the host now terminate properly. The bug (introduced in 4.40) caused sessions reopened after a host close (e.g., from a "logout" command) to report "MacTCP: I/O in progress"; further attempts to open the session would cause a crash.

*** IMPORTANT FIX: Option key handling now uses the standard Mac keyboard layout properly in emulator windows; the IBM PF keys are now sent using Control-key combinations. The "Control Global..." item "Remap Option-key combinations" is now OFF by default for better international compatibility.

* dataComet-NCSA and dataComet-Brown now launch documents correctly when the "Comet Default" document does not exist (e.g., it has not yet been created).

* The "Comet Default" settings document is now closed after use (even when "Comet Default"'s "Only one session per documet" setting is on in the "Control Session..." dialog). A bug was fixed which could lead to a crash if the "Comet Default" was open and a new session was created and then disposed of.

* Background window switches now activate the new front window correctly.

* Background emulator screen updates now occur promptly while dataComet is waiting to be switched into the foreground to present an error alert rather than being delayed until after the switch.

* Background Copy and Paste now works correctly (dataComet was using the application scrap and GetScrap(), which are unreliable in the background).

* Timers are now allocated in the System Heap so they are updated properly when dataComet is running in the background.

* Control key interpretation is now handled through the Script Manager when it is available in order to handle varying keyboard layouts correctly (e.g., a Dvorak layout).

* The "ins", "home", "end", "del (x->)", "page up", and "page down" keys now work when an emulator window is frontmost. To send VT220 keys, hold down the Shift key while pressing the key.

* The IBM 3270 emulator now always sends an "Enter" when the Return key is pressed; it no longer remaps the Return key to "Line Feed" when the ASCII mode "Control Emulator" "Return key sends" item "LF" is on. This is dataComet's default setting, so the IBM "Enter" key could be sent only by pressing the Enter key or remapping the Return key. Shift-Return still performs a "Line Feed".

* The IBM Reset key is now handled immediately so that the "Host Busy" condition can be reset (rather than having the Reset wait forever on the macro queue for the Busy condition to clear).

* Text window output is now redirected correctly when the "Shift-Window Select" redirection command (or "!W>" macro) is used so that edit windows can be more easily used as sources for boiler-plate text (i.e., you need only press Enter to paste the selection into the session with which it's associated).

* The default IBM 3270 and PC-ANSI color mappings have been updated to be more attractive.

* The "Window" menu "Reconfigure Session..." dialog now resets the terminal when OK'ed so that you do not need to reconnect to get the terminal type set correctly.

* All VT100 Erase in Display commands now reset double high and wide character attributes.

* The "CometChicagoFont" is now accessed by name rather than number to avoid font ID conflicts.

* The DEC-Multinational and ISO-Latin fonts have been improved. Both now have 9 and 12 point sizes and a bold font, and some incorrect characters have been fixed.

4.40 3/13/96

Enhancements:

* The "Serial" menu now offers the choice of 115K and 230K connection speeds.

* Holding down the option key when opening a session document opens the document without opening the connection rather than presenting the "Configure Session" dialog. You can now use a new "Control Session" dialog item, "Connect automatically", to configure a document so that you can open it without connecting.

* You can use dataComet-NCSA or dataComet-Brown Sets to launch sets of dataComet documents.
See the "Telnet Set example" and "Brown Set example" in the Documents menu.

* You can now reset the emulator using the "Shift-Clear buffer" menu command. This also resets all vt100 graphics characters displayed, the better to fix displays which have been messed up by an inappropriate SO control character in the data stream.

* The "Control Session" item "Only one session per document" is now on by default, so that the default behavior is more useful when launching from browsers or Sets.

Bug fixes:

*** IMPORTANT FIX: ALL previous versions of Comet and dataComet have been found to crash the system when the Macintosh Segment Loader attempts to launch the application and there is less memory available than the application's "Preferred" size. This problem has been resolved by correcting the link order of libraries when dataComet is linked, so that the entry point of the program is at offset 0, and the Segment Loader loads the application code correctly when memory is short. PLEASE AVOID this problem by upgrading to dataComet 4.40, dataComet-Brown 4.40, and dataComet-NCSA 4.40!

*** IMPORTANT FIX: The error dialog is now fixed so it is pre-loaded and locked and uses ICON resources from dataComet's resource fork rather than relying on their presence in the System. This avoids crashes caused when the dialog executed at a time when either dataComet's memory or Finder memory was low. (This bug was also present in Comet.)

*** IMPORTANT FIX: Memory leaks of >6K per session disposed of have been avoided by properly disposing of all session resources.

*** IMPORTANT FIX: All calls to the Print Manager are made AFTER PrOpen() is called, so that the default is set correctly and you are notified if your printer has changed. Improved error checking handles Print Manager failure modes correctly.

*** IMPORTANT FIX: The serial driver code now tests the serial port to see if it's in use before opening a connection, and queries the user whether to proceed if it's already open, and no longer hangs up the line when the application quits if the serial driver has been opened. This prevents MacTCP connection loss when using MacSLIP or interfering with other application which use the serial ports.

* The "Serial" menu items "Hang up phone" and "Reset Parameter RAM" are now executed correctly when they are selected.

* dataComet now works better under System 6. Menu keys work correctly even when the Script Manager is not present; the scrollbars are drawn properly rather than reversed when using the scrollbar in the emulator window.

* Document opens now fail with an alert if the whole text can't be opened. Session documents are not opened unless there is enough memory to load the .edit window in its entirety.

* Edit windows now have the scrollbars set so that the cursor will display if it is on an empty line at the end of the text. This also guarantees that the scrollbars will appear when text is appended to an empty window and the text is scrolled halfway down.

* The document icon mask has been fixed so it inverts correctly when selected.

* The VT100 and ANSI emulators now handle up to 64 parameters in a command sequence rather than only 10. This could cause incorrect attribute display and other non-fatal errors.

* The mouse click code now delays handling of keyboard input until the click action is completed so that keyed text appears where you clicked.

 * The "home", "end", "x->", "page up", and "page down" keys now work when an edit window is frontmost. The "help" key performs a "Find selection" command. If the emulator window is up, these keys still send VT220 escape sequences to help ensure compatibility with host applications.

 * The VT100 "Calculator" keypad mode now sends a '+' when the '+' key is pressed rather than an "Application" mode control sequence.

A1.5. dataComet Release Notes 4.1.2A - 4.30

This document has information on (select and use "Find..." to go to the section):

Release Notes:

4.30 2/24/96

Features:

* dataComet now prompts the user to save or allow automatic deletion of a new dataComet document produced by dataComet-NCSA 4.30 or dataComet-Brown 4.30 (when those applications are configured to do so). For best performance of dataComet as a Telnet/TN3270 helper application, you should use these three applications at version 4.30 or higher; dataComet-NCSA and dataComet-Brown 4.30 have significant enhancements in their reliability and functionality over earlier versions. See "Network helper and GURL AppleEvent support" in the "Overview of dataComet" document.

* There is now a "Match case" macro; there are also new macros to control Return key mapping for the ASCII emulators (see "Match case" and "Telnet commands" in the document on Macros).

* The "Control Printing..." dialog now has an option to enable Color printing using the emulator's color map; dataComet now defaults to printing emulator screens in black and white to avoid color mapping problems.

Bug fixes:

* Sessions opened through GURL AppleEvents now have the name set to the host name rather than '@'.

* The cursor is now set properly when WindowShade is used to hide a dataComet window.

* Several memory leaks which could affect usability in low memory conditions were fixed.

* You can now define key macros for a new edit window without causing a crash. You can also now save the configuration for a text-only document.

* Edit windows now check for exactly 32767 characters rather than 32500 so they can display as much text as TextEdit can handle.

* Each edit window now has a separate scrap; an Undo of a Cut or Undo operation now restores the text that was cut from the window rather than the current scrap.

* Setting the Modem Port as the Serial Printing port in the "Control Printing..." dialog now selects the Modem port when the document is reopened rather than incorrectly opening the Printer Port.

* Printing a page in the scrollback buffer prints correctly rather than showing incorrect bold, inverse, and other attributes.

* Pastes with both the ASCII and IBM emulators work more reliably; using the Enter key to paste into a 3270 session now works; ASCII pastes now work when delays are set.

* You can now use the Window menu items when a session is Miniaturized (iconified).

* Labels now appear in the correct place in the popup list when there are empty labels preceding them. Pressing the '?' cursor-button now displays the labels when "Show status bar at top of window" is disabled.

* When the MacTCP Domain Name Resolver returns 0 or -1 for an address, an alert is presented.

* The "Set macro" dialogs now use the "Use Command Font" setting correctly; when it was off, macro actions such as PF entries were not being displayed correctly.

4.22B 1/15/96

Features:

* You can now define key macros for text-only windows.

* The Edit Selection menu item "Go to line..." now sets the cursor at the beginning of the line in edit windows.

* You can now copy and paste the color array from one "Control Color..." dialog panel into another session's "Control Color..." dialog panel.

* 16-color ANSI is now supported; hold down the Shift key when selecting the Control Color... dialog to set the Intense colors.

* Documents: A new fedworld.gov Document provides a sample PC-ANSI configuration. The ALA sample has been enhanced to provide a better example of configuring dataComet for card catalog access. E.g., the single click now performs a copy/paste so the user can select items using only the mouse.

Bug fixes:

* PC-ANSI color displays now display properly (the default background color is now white rather than the same as the foreground in the default case!).

* IBM screens no longer display "square boxes" instead of blanks when used with Monaco and some other fonts which use a "square box" as character 255, which dataComet is using to represent 3270 NULL characters.

* Text is now always properly updated in edit windows after a "Find..." is performed. When the cursor moves outside the window, the selection is now displayed at the middle of the window rather than the top or bottom so that scrolling is easier to use.

* Text window contents no longer "flicker" due to being drawn twice when a document is opened.

* Telnet Terminal type negotiation has been fixed so that sessions with OpenVMS (and MultiNet) TCP/IP servers will open even though they perform incomplete negotiations (i.e., the negotiation sequence is not terminated by actual data transmission to fix the type: this can cause problems if the host expects a wholly different character set such as IBM EBCDIC). Keying is allowed when one second has elapsed since the last negotiation.

* An incorrect alert stating "Can't delete macro resource" no longer appears when setting macros.

* The single click macro or default cursor motion action is not executed if a double-click is performed. (Note this slows response down somewhat.)

4.2.1B 12/18/95

Features:

* You can now perform a "Power Quit" (using Option-Quit) which closes dataComet without prompts to close windows or save documents.

* You can now set the Option key to function as a meta-key for EMACS using the Control menu "Emulator" item "Option is Meta-Key".

* The IBM 3270 PF/Action and ASCII Control key menus now stay up when an edit window is frontmost; in this case, these menus produce only a beep unless the Option key is held down, which causes the equivalent macro to be placed in the edit window at the cursor.

* The Option key NO LONGER automatically produces Control characters except on Macs using Mac+ or previous keyboards, which lack a Control key. This allows the entry of standard Option-key characters (e.g., umlaut-U) in edit windows for better compatibility with the Keycaps

* dataComet now sets the default creator type for downloaded 'TEXT' files to dataComet rather than TeachText.

* The '!CB' shieldwindow macro command, which puts up a window to conceal the Finder and other applications, has been added to provide security when dataComet is used in a public kiosk. (See "Set Launch Macro" above).

Bug fixes:

* The MacTCP DNR code is no longer closed, released, and then called again without being properly opened (this very nasty bug has been present in all previous versions of dataComet; under some circumstances it could cause dataComet to crash and leave a damaged MacTCP file).

* dataComet now updates window positions and fonts when a Quit is done. This formerly occurred only if the window was closed using the File menu "Close" command.

* The IBM 3270 Action menu has been corrected so that the defined key-equivalents work with all 3270 keypad configurations.

4.2.0B 12/14/95

Features:

* The Option key can now be set to function as a meta key in the "Control Emulator" dialog.

* If a selection is made in an edit window, "Print..." will print the selection rather than the complete text in the window. (The "!Fq" macro was added also to support this function.)

* Support has been added for disabling menu items, including the Finder menu (See "Menu Commands" in the document on "Macros"). Used with the "NoForceQuit" extension installed in the System Extensions and a dataComet "Set Launch Macro" which disables the menus, you can now set up a secure terminal kiosk for public access using dataComet. (And remember, with customizable macro buttons one can now set up a preconfigured document to simplify access for inexperienced users...).

* Key Macros can now be defined in edit-only windows.

* Fonts: A Comet-DEC-Multinational font is now provided in the dataComet release package. The PC-ANSI font has been fixed so the box characters align better and a 16-point version is now included.

Bug fixes:

* If serial printing is on and the serial port can't be opened, the copy of the data to be printed is released to avoid an endless loop.

* The 3270 emulator now draws the screen correctly when inserting characters and performing "Erase field" commands.

* Choosing the "File" menu item "Print page now" when using serial printing causes a form feed to be sent to the printer.

* Edit windows now zoom correctly.

* Type 4 (Zero Divide) system crashes caused by launching old Comet documents and documents made by dataComet-NCSA are now avoided. The PrDefault() system routine was crashing when it was called without being preceded by a PrOpen() call.

* "Edit -> Selection" items to move the cursor now use the Shift key to extend the selection range and the Option key to move by words in order to comply better with Macintosh user interface standards.

* The default macro queue size has been upped to 16K from 4K to handle large macros better.

* The documentation on the Search macro has been corrected to accurately describe the macro.

* The Latin-1 character y with an umlaut will now display rather than appearing as a blank.

* Error warnings occurring when an edit window is frontmost are now displayed using a dialog rather than a timed window alert in order to avoid conditions which can cause crashes.

* Using Option-Select button to set a button macro when the button labels are displayed no longer leaves the screen display partially blank. (This condition would persist until the window is closed and reopened.)

* Using the "Enter" key to paste from an edit window into an emulator window now send the complete selection rather than sending only a portion of it.

4.1.9A 11/8/95

Bug fixes:

* Version 4.1.8A was burned because the resource fork in the StuffIt archive was bad.

* The 3270 emulator now resets the cursor to 0,0 when the screen is cleared (this affected only the display; the next character entered appeared in the correct position).

4.1.8A 11/4/95

Enhancements:

* Copies of dataComet which have been registered can be shared (launched from AppleShare servers by multiple users).

* The execute menu macro ("!\<3-digit menunum>\<3-digit itemnum>") has been extended so that the macro "!\<3-digit menunum>\<<3-digit itemnum> + 192>" disables the menu item so that it cannot be used until dataComet is launched again.

* A new "Set Launch Macro..." dialog allows you to set up a macro which is executed on launch, prior to opening any sessions, so that dataComet can be easily configured to disable various commands. This allows dataComet to serve as a relatively user-proof kiosk terminal for library or other public access applications.

* Macros were added to select the word and line at the current mouse cursor position, to delay a number of ticks ("!d\000"), and to send text and execute macros in an edit window ("!El", "!Ew", and "!EM" and "!Em").

* "Command-Enter" and "Command-Return" now send text to the host in a reliable fashion (whereas using the Enter key to execute a macro in 4.1.7A often resulted in a failure to send plain text due to '!'s in the text or an overrun of the macro buffer). Shifting these commands causes the text to be interpreted as a macro.

* Menus and default key-equivalents have been rearranged to improve the interface. (Note that users can modify key-equivalents by editing the MENU resources in the application.)

* Fonts are now packaged in a separate folder (rather than the application) to save disk space. dataComet now automatically opens resource files in the "Fonts" folder.

* dataComet now negotiates sessions successfully with IBM mainframe hosts running SNS-TCP.

* The "Save" command is now executed only if an edit window has been modified. The window's menu item is underlined to indicate that it has been modified.

* Output can be redirected from an edit window to a host session by pressing Shift while selecting the target window. See the "Summary of special key-action combinations" in the "0. Overview of dataComet" document.

* A "Control ASCII Emulator" dialog item, "Do CR-LF when LF received (newline mode)" has been added.

Bug fixes:

* An icon resource for the '3278' configuration type has been added so that host session document icons are displayed correctly in the Finder. This also caused some problems with Easy Open.

* Macro recording of menu item selections now works reliably for all menu items.

* The 3270 emulator now handles proportionally-spaced fonts correctly.

* Drawing of selected text in VT100 emulator screens is now performed correctly for characters which have the Reverse attribute set. As a side effect of this fix, display of selected areas in all emulators is now smooth (no reblanking is performed when paging).

* Macs with 9" screens no longer automatically go into fast drawing mode; the user must now select this option.

* The "Save Configuration..." dialog now copies all resources from the old session document to the new session document when a new session name is entered, including macros. Previously one needed to duplicate the document in the Finder to copy the entire configuration to a new document.

* The "Save" command is now uses different files to save the emulator and .edit window text. This avoids the unpleasant possibility of overwriting a .edit window by mistake. When the emulator selection is being saved, the menus change so the "Append" is the default for the "Command-S" Save key equivalent.

* Text-only edit windows can now be miniaturized. If a session is selected in the "Window" menu, whichever window was up front previously (emualtor or .edit) is brought to the front rather than the emulator window.

* Error messages are reported in a window when an edit window is frontmost.

* The button labels on the left hand side are now drawn only when the emulator window is in front, and the default IBM labels no longer include ASCII options for buttons numbered above 24.

* Printer port selection has been enabled.

4.1.7A 9/14/95

Enhancements:

 * The "Map Return to Newline" item in the "Control Ascii Emulator" dialog has been replaced by two items are used to set the mapping, "Return key sends [] CR followed by [] LF". If "Map Return to Newline" was true, it's taken to mean that return -> CR LF.

Bug fixes:

 * MacTCP Read calls now rely on asynchronous completion routines rather than the MacTCP Notification routine. This enhances performance by replacing the kluge used in 4.1.6A for OT compatibility of occasionally performing a Read (which required 1 second to complete when no data was available) to catch the cases where the Notification routine failed to report data arrival correctly.

 * The selection scrolls properly now when the top of the buffer scrolls beyond the maximum scrollback buffer limit. When a copy is attempted the selection range is tested for being out of range and an error is reported if it is.

 * Undo resizes the scroll bars correctly.

 * The ASCII emulator drawing routines sometimes left lines blank which should have been drawn if the line was inverted and the line before it had blanks at the end.

 * VT100 character deletion now shifts the on-screen image a double rather than single width when characters are double-wide.

 * The VT100 PF4 key now works correctly (it was sometimes mapped to the cursor right key).

 * Command-key combinations which don't match menu items are now ignored.

 * To prevent confusion and possible mangling of macros, the key macro dialog item "Use Command Font" is disabled while a macro is being edited.

 * The Single-click macro is now interpreted if one has been set.

 * Labels for the macro buttons are now updated correctly and saved when the titles are changed.

 * The documentation on Macros was incomplete in 4.1.6A; it has now been updated to include more information.

4.1.6A 8/31/95

Bug fixes:

 * Control Global items have been added to control MacTCP status calls and optimization of the MacTCP resend timers.

 * dataComet 4.1.6A now works with OT. MacTCP (especially when emulated by OT) intermittently fails to notify applications that data is available. dataComet used to use MacTCP status calls to check this; it now works around this problem by occasionally performing a Read without notification. (You can tell when this is happening because of a lag in typing input...)

 * Old Comet documents which did not contain a Print Layout resource sometimes crashed when opened.

 * The notification window for sessions which have the status bar disabled is now retained between calls to ensure that it will be there if memory is low. This could cause a crash.

 * The labels displayed by the "?" control are now aligned properly.

4.1.5A 8/13/95

Enhancements:

 * "Option-Resize Window" now resizes the emulator screen and negotiates a Window Size (NAWS) Telnet option with Telnet hosts.

 * Pasting a sound resource ('snd ') into a dataComet window sets the window's beep to the sound and saves the resource automatically.

Bug fixes:

 * The "Control Emulator" item "Answerback" now sets the Answerback message for ASCII emulators.

 * Button macros are now always posted to the correct session when they are executed.

* When text windows are saved, the changed flag is set so that the user is not prompted unnecessarily when quitting dataComet.

* The "!W>windowname\000" macro now works more reliably. Text windows now discard macro keys which can't be sent out on a connection, so connectionless text windows won't fail to post macros after a macro containing characters for a connection is executed. (This makes text windows more useful for running macros.)

* Font sizes equal to zero are presumed to need a 9-pt font. (Some helper applications produced NCSA documents which passed on an invalid font size to dataComet-NCSA.)

* Windows have a minimum window size enforced so that scrollbars and old Comet documents with bad window sizes will display correctly.

4.1.4A 8/9/95

Enhancements:

* Support for GURL AppleEvents has been added.

* The buttons at the top and left of the screen can now be associated with macros by holding down the Option key while clicking on them.

Bug fixes:

* The screen erase and scroll rectangle is now set correctly when a session is opened with a font size other than 9 pt. This caused seriously muddled screens!

* Menus are now set correctly for the document which is frontmost. Sometimes the menus were set up for a text document rather than a session document and vice-versa.

* dataComet no longer registers an NBP name on AppleTalk network.

* When a text documents which is already open is opened again, the document is brought to the front rather than being opened again.

* Text document window positions are now saved correctly.

* Open Transport 1.0.5b4 reports an overlarge maximum segment size on Ethernet which caused dataComet to fail when creating a session. Sessions will now open even though the segment size is reported incorrectly.

* When new documents are closed, the user is prompted to save them.

4.1.3A 7/26/95

Bug fixes:

* The "Add page numbers at bottom of page" and "Add line feed after carriage return" were switched in the "Control Printing" dialog.

* When windows are closed, the corresponding Window menu entry is disabled. Selecting a closed but not-disabled window caused crashes.

* When "Show status bar at the top of the window" is disabled, the labels associated with the Macro status rectangle are no longer displayed. This caused crashes if the window was closed with the go-away box.

* The Telnet Send menu item "Break" now sends a Telnet Break rather than a Telnet Interrupt Process.

* The cursor now blinks in text-only windows.

4.1.2A 7/21/95

Enhancements:

* Text windows. Using "New..." or "Open..." with the Shift key held down opens a document as a connectionless text-only

document. This is a TextEdit document which has a 32K size limit.

 * GUI improvements. The Control Controls... dialog allows the user to configure the dataComet emulator window controls to suit individual preferences. The "About dataComet" menu brings up a text window containing the text. Documentation is contained in separate text files rather than within the application.

 * Selectable Fonts. You can now select fonts other than the dataComet fonts. ASCII emulators support the display of proportional fonts as well as fixed point fonts.

 * PC-ANSI support with 8 colors.

 * VT100 support now includes Print Streaming and the display of blinking and double-width and double-height characters. The dataComet fonts are automatically switched in for the display of characters > 127 when a different font is in use; this can be disabled in the Control Emulator dialog. Scrolling through the scrollback buffer is now much faster than it was in Comet.

 * If the Control Global dialog item "Enable Fast Drawing" is enabled and a session with the correct font/size is launched with Color mapping off, dataComet changes the Monitor mode to black-and-white automatically.

 * The Control "Printing..." dialog allows the use of non-QuickDraw serial printers which are connected to the Printer Port. Sessions can be configured to print all text off the top of the page automatically.

 * Enhanced text commands. "Undo" is now supported in edit windows, and the Edit menu "Selection" submenu offers commands for cursor motion, bracket matching, and text quoting.

 * Macros: "Record actions for macro" now has a delay built in so that the user no longer has to type slowly for the recording algorithm to work well. The "Define key macro..." dialog now offers "Ignore Caps Lock" (so that the Caps Lock key is ignored when matching key macros) and "Use Command Font" (so that the user can use the whole emulator font rather than the special command font which reinterprets ASCII characters > 127 and uses them as command buttons). "Dump key macros" now formats the macros in a nicer fashion.

 * The "Control Emulator" dialog for the 3270 now offers a new paste option which puts the pasted text into the same starting position as the first line pasted.

 * The "Control Session" dialog now allows you to set the Tab Threshold which is used when copying and the Edit menu item "Table mode for Copy and Save" is enabled.

Bug fixes:

 * The 3270 now handles an EUA command correctly in all cases; this could cause fields not to be erased correctly if the previous field was protected.

 * Failed MacTCP close calls no longer cause crashes.

 * MacTCP receive buffers are now allocated to be (4 * MTU + 1K) with a 16K minimum so that dataComet performs better.

 * dataComet works on the Macintosh 9500 under Open Transport. For some reason OT failed when dataComet allocated large send buffers.

A2. dataComet keyboard

---

dataComet documentation. (Rev. 1/27/08)

About the "dataComet Keyboard.rsrc" file

If you're using OS X 10.2 or later, you can install the "dataComet Keyboard.rsrc" file in order to ease use of EMACS or dataComet key macros; this helps by allowing you to disable Option-key remapping (which is used by defalt to allow you to enter characters from extended character sets).

To install the "dataComet Keyboard.rsrc" file, first drag and drop the file from the dataComet "Extras" distribution folder into either your user account "Library/Keyboard Layouts/" folder or the system's "/Library/Keyboard Layouts/" folder.

After installing the keyboard resource and rebooting, you need to select the "dataComet Keyboard" keyboard layout in the "Input Menu" pane of the "System Preferences..." "International" Preferences panel (which appears in the "Personal" row of the Preferences panel). Checking the "dataComet Keyboard" item in the list will cause "dataComet Keyboard" to appear as an option in menu bar's Input Menu.

If you then select the "VT100" Preferences panel option "Option is Meta Key" for a given session, dataComet will automatically switch in the "dataComet Keyboard" when that session is frontmost.
You can also select "dataComet Keyboard" manually from the "Input" menu.

When you select "dataComet Keyboard", the option key will now have no "dead keys" defined, so that a single keystroke will immediately produce a character all character keys, rather than waiting for the next keystroke for some of the keys (e.g., in the US keymapping, E, I, N, and U, which produce accents, carets, and umlauts applied to the next character entered).

A3. Public Terminal Kiosk Configuration

---

dataComet offers features which help provide more secure and user-proof public access terminals. Many organizations offer public access to their records (such as card catalogs) and other databases and services on the Internet only through time-sharing systems to ensure that the public access workstations are not compromised by user modifications to the workstation's environment, or used in inappropriate ways.

You can configure dataComet with some functions disabled for kiosk use to enhance security, e.g., disabling the ability to run a local Shell session (while allowing use of Telnet or SSH to connect to other systems).

To do this, use the "Macro" menu item "Set Launch macro..." to set a macro to execute at the time that dataComet is launched. Holding down the Shift key while pressing the "Set" (or "Delete") button in the dialog will write the macro to an internal application resource file as well as the user-level "Comet Default" document (stored in the user's "~/Preferences/dataComet Preferences" folder).

NOTE WELL: Make sure that the file permissions on the dataComet application bundle are set so that only the owner has write permission... otherwise the user will be able to modify the Launch macro, and re-enable the functions you wish disabled.

For the sake of example, to disable the ability for users to open a new shell in dataComet, paste

```
!\028\195
```

into the "Set launch macro..." dialog edit field, and hold down the Shift key while pressing the "Set" button. (The "!\028\195" macro disables the "File -> New -> Shell" menu and disables the option in the "Configure Terminal Session" dialog.)

Note that if you press "Delete" without holding down the Shift key, the user-level Launch macro will be deleted, without deleting the application-level Launch macro; if you bring up the dialog again, the application-level Launch macro will NOT be displayed. The user can enter a different user-

level macro which WILL be displayed in the dialog, which will be executed AFTER the application-level macro, so that no restricted commands may be executed. This allows users to configure useful Launch macros, e.g., automatically opening a set of user session documents, while retaining security.

Disabling macro functions: special macro commands are provided specifically for the function of disabling specific macro cabilities: "!--" will disable all macro commands entered up to the end of the Launch macro or the next "!--" macro; "!-\nnn" or "!-<classCharacter>" will disable the functions associated with a macro class. See "4. Macros" for more information on macros, and "4.1. macrocodes.h" for a complete list of functions available.

Here's a detailed example of disabling different menu items on launch, using the "Macro" menu item "Set Launch macro..." to set a macro to execute at the time that dataComet is launched. (Please note that this macro cannot execute some macro commands, e.g., File "New", since it is executed very early in dataComet's configuration process). Here is an example macro, set within quotation marks:

"!\001\193!\001\194!\001\195!\001\196!\001\197!\001\198!\001\199!\001\200!
\001\201!\001\202!\001\203!\001\204!\001\205!\001\206!\001\207!\001\208!
\001\214!\002\202!\013\207!\003\193!\003\194!\003\195!\003\196!\003\197!
\003\198!\003\199!\005\193!\005\194!\005\195!\005\196!\005\197!\005\198!
\005\199!\005\200!\005\201!\005\202!\005\203!\005\204!\005\205!\005\206!
\006\194!\006\195!\006\196!\006\197"

You can execute this macro (likewise the ones below) by selecting the text inside the quotes and pressing "Shift-Enter".

You need to copy the macro (again, not including the quotation marks) and paste it into the "Set Launch macro..." dialog to set the launch macro permanently. When you press OK, the macro will be saved in the "Comet Default" document in the System Folder.

The macro executes a number of actions which ensure that the user can no longer save data on the Macintosh disk or modify the configuration of dataComet:

a) Disable all File menu items except for those related to printing.

```
!\001\193
!\001\194
!\001\195
!\001\196
!\001\197
!\001\198
!\001\199
!\001\200
!\001\201
!\001\202
!\001\203
!\001\204
!\001\205
!\001\206
!\001\207
!\001\208
!\001\214
```

b) Disable the "Edit" menu "Append file to .edit window..." item to prevent users from opening random files.

```
!\002\202
```

c) Disable the "Edit -> Selection" menu "Execute macro" item to prevent users from executing macros in an edit window.

```
!\013\207
```

d) Disable the Window menu items "Reopen", "Close", "Abort", & "Reconfigure...".

```
!\003\193
!\003\194
!\003\195
!\003\196
```

e) Disable Macro menu items except for user items.

```
!\005\193
!\005\194
!\005\195
!\005\196
!\005\197
!\005\198
!\005\199
!\005\200
!\005\201
!\005\202
!\005\203
!\005\204
!\005\205
```

f) Disable Telnet menu items.

```
!\006\194
!\006\195
!\006\196
!\006\197
```

You can allow users to open sessions with a restricted set of hosts by configuring documents for the sessions and including them in the dataComet "Documents" folder, even though the "Open..." dialog has been disabled.

To easily get macro lists of items you want to disable, select the Macro menu item "Record actions for macro" and select the menu items while pressing "Shift-Option" with the "Caps Lock" key down. When you're finished selecting menu commands you wish to disable, select "Record end--ready to Paste". You can then paste the recorded disable-menu commands into an edit window for testing, or directly into the "Set Launch macro..." dialog.

A4. Internationalizing dC

---

dataComet documentation. (Rev. 1/27/08)

To translate dataComet into a language other than English, you need to use a tool such as ResEdit to modify string resources embedded in dataComet's "resource fork". If a document containing modified versions of these resources is placed in the dataComet "Fonts" folder, the modified versions will automatically replace the default English version.

Resource Type	Function
CNTL	Names of the buttons that appear in the button bar.
DLOG	You can rearrange the items to fit the new text, as long as the items are not renumbered.
DITL	Dialog text is contained in the 'DITL' resources. The name of each item should be duplicated exactly in the documentation so that Control-Click command searching will work automatically.
MENU	Menu items. The name of each item should be duplicated exactly in the documentation so that Control-Click command searching will work automatically.
STR#	Strings used by dataComet, grouped according to function. Empty strings are defined to allow for future expansion within a general category, so make sure you translate the

ones at the very end!

TEXT Some copyright information, which does not have to be translated.

Naturally, the dataComet documentation contained in the "Documents" folder should be translated into the target language also for a truly complete implementation of a foreign-language version of dataComet.

String resources (STR#)

---

128 "General Pascal strings": Contains some important globals:

Finder name, names of important documents (e.g., "Comet Default") and folders (e.g., "Fonts"; the "Documents" folder name is an exception, since it is picked up from the menu item title).

129 "Keycode name table": for the key macros and the Key Macro dialog; key titles need to correspond to the national keyboard key codes being used.

130 "General strings": Contains general alert strings. Note globals:

String 1, "enablefinder", is the default password for returning from secure kiosk terminal mode;

".edit", ".print", etc., control file-suffix actions, e.g., the first identifies a sessions' ".edit" text file, and the second triggers automatic printing of downloaded files.

131 "MacTCP": Strings specific to MacTCP alerts.

132 "TFTP": Strings for the TFTP server.

134 "VT100 function keys": Labels for the buttons on the left.

135 "IBM function keys": Labels for the buttons on the left.

136 "Color dialog strings"

137 "Terminal responses": Modify only if you wish to change the gruesome details of terminal responses.

140 "Font names": You can customize automatic font selection by modifying the name pairs; the pairs represent normal/bold fonts to be used as the default for IBM 3270, ISO Latin (the primary default), DEC-Multinational, and PC-ANSI emulation when an emulator type is selected. The correct translation is automatically selected.

NOTE: In translation, always preserve '%d', '%s', and other substrings of the form '%<character>' when they appear in strings: this notation is used by C-language routines called by dataComet to format menu and dialog text.

A5. dataComet "vttest" score

VTTEST Score Sheet - dataComet 4.6

VTTEST VT100/VT102 Compatibility Test Score Sheet

Program and version: dataComet 4.6   Date: 7 May 99
              Score: 98 + Extra credit: 8 = Final score: 106

Check box if test passed. Score 1 point per test.
Perfect score = 100 points. Extra credit at end.

dC   1. Test of cursor movements

 1   1. Text inside frame of E's inside frame of *'s and +'s, 80 columns
 1   2. Text inside frame of E's inside frame of *'s and +'s, 132 columns
 1   3. Cursor-control chars inside ESC sequences
 1   4. Leading 0's in ESC sequences

            2. Test of screen features

 1   5. Three identical lines of *'s (test of wrap mode)
 1   6. Test of tab setting/resetting
 1   7. 132-column mode, light background
 1   8. 80-column mode, light background
 1   9. 132-column mode, dark background
 1   10. 80-column mode, dark background
 1   11. Soft scroll down
 1   12. Soft scroll up / down
 1   13. Jump scroll down
 1   14. Jump scroll up / down
 1   15. Origin mode test (2 parts)

                Graphic Rendition test pattern, dark background

 1   16. Normal ("vanilla")
 1   17. Normal underlined distinct from normal
 1   18. Normal blink distinct from all above
 1   19. Normal underline blink distinct from all above
 1   20. Normal reverse ("negative") distinct from all above
 1   21. Normal underline reverse distinct from all above
 1   22. Normal blink reverse distinct from all above
 1   23. Normal underline blink reverse distinct from all above
 1   24. Bold distinct from all above

```
1     25. Bold underlined distinct from all above
1     26. Bold blink distinct from all above
1     27. Bold underline blink distinct from all above
1     28. Bold reverse ("negative") distinct from all above
1     29. Bold underline reverse distinct from all above
1     30. Bold blink reverse distinct from all above
1     31. Bold underline blink reverse distinct from all above

          Graphic Rendition test pattern, light background

1     32. Normal ("vanilla")
1     33. Normal underlined distinct from normal
1     34. Normal blink distinct from all above
1     35. Normal underline blink distinct from all above
1     36. Normal reverse ("negative") distinct from all above
1     37. Normal underline reverse distinct from all above
1     38. Normal blink reverse distinct from all above
1     39. Normal underline blink reverse distinct from all above
1     40. Bold distinct from all above
1     41. Bold underlined distinct from all above
1     42. Bold blink distinct from all above
1     43. Bold underline blink distinct from all above
1     44. Bold reverse ("negative") distinct from all above
1     45. Bold underline reverse distinct from all above
1     46. Bold blink reverse distinct from all above
1     47. Bold underline blink reverse distinct from all above

          Save/Restore Cursor

1     48. AAAA's correctly placed
1     49. Lines correctly rendered (middle of character cell)
1     50. Diamonds correctly rendered

          3. Test of character sets

1     51. UK/National shows Pound Sterling sign in 3rd position
1     52. US ASCII shows number sign in 3rd position
1     53. SO/SI works (right columns identical with left columns)
1     54. True special graphics & line drawing chars, not simulated by ASCII

          4. Test of double-sized chars

          Test 1 in 80-column mode:

1     55. Left margin correct
1     56. Width correct
```

Test 2 in 80-column mode:

1 57. Left margin correct
1 58. Width correct

Test 1 in 132-column mode:

1 59. Left margin correct
1 60. Width correct

Test 2 in 132-column mode:

1 61. Left margin correct
1 62. Width correct

1 63. "The mad programmer strikes again" test pattern
1 64. "Exactly half the box should remain"

5. Test of keyboard

1 65. LEDs.
1 66. Autorepeat
1 67. "Press each key" (ability to send each ASCII graphic char)
1 68. Arrow keys (ANSI/Cursor key mode reset)
1 69. Arrow keys (ANSI/Cursor key mode set)
1 70. Arrow keys VT52 mode
1 71. PF keys numeric mode
1 72. PF keys application mode
1 73. PF keys VT52 numeric mode
1 74. PF keys VT52 application mode
1 75. Send answerback message from keyboard
1 76. Ability to send every control character

6. Test of Terminal Reports

1 77. Respond to ENQ with answerback
1 78. Newline mode set
1 79. Newline mode reset
1 80. Device status report 5
1 81. Device status report 6
1 82. Device attributes report
0 83. Request terminal parameters 0
1 84. Request terminal parameters 1

7. Test of VT52 submode

```
 1     85. Centered rectangle
 1     86. Normal character set
 0     87. Graphics character set
 1     88. Identify query

           8. VT102 Features

 1     89. Insert/delete line, 80 columns
 1     90. Insert (character) mode, 80 columns
 1     91. Delete character, 80 columns
 1     92. Right column staggered by 1 (normal chars), 80 columns
 1     93. Right column staggered by 1 (double-wide chars), 80 columns
 1     94. ANSI insert character, 80 columns
 1     95. Insert/delete line, 132 columns
 1     96. Insert (character) mode, 132 columns
 1     97. Delete character, 132 columns
 1     98. Right column staggered by 1 (normal chars), 132 columns
 1     99. Right column staggered by 1 (double-wide chars), 132 columns
 1    100. ANSI insert character, 132 columns

           9. Extra credit

 0    101. True soft (smooth) scroll
 1    102. True underline
 1    103. True blink
 1    104. True double-high/wide lines, not simulated
 1    105. Reset terminal (*)
 1    106. Interpret controls (debug mode) (*)
 1    107. Send BREAK (250 msec) (*)
 0    108. Send Long BREAK (1.5 sec) (*)
 1    109. Host-controlled transparent / controller print (*)
 1    110. Host-controlled autoprint (*)

          (*) Features of VT100 not tested by vttest.


------------------------------------------------------------------------
VTTEST Score Sheet / Columbia University / kermit@columbia.edu / 18 Dec 95
```