

## Network Station IBM native emulation NPT client comparison to FutureSoft WinCE emulation products, and Wyse (Pericom) emulation products

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The following table depicts similarities and differences between the VTxxx, 5250 and 3270 NPT Clients compared with the IBM EZNS and the IBM WBT products, as well as the Wyse WBT product. The Wyse WBT product emulators are provided by Pericom.

Initial table contents came from the Futuresoft web site, and reflects information on their DynaComm Connectivity Series for Windows CE (DCS/CE) Release 3.0.0.0. The WBT emulation clients were exercised on drops available in the week of 03/06/0 thru 03/29/00. Functions may have been added after this chart was made. No print functions were serviceable in this code level, so the printer section was extrapolated from FutureSoft documentation, and from the printer session configuration entries.

A Wyse Winterm 3000 series device was reviewed, with version 3.3.1 system software, and Pericom version 1.2.6 emulation software.

Significant functional differences include:

- No on-line help for the Futuresoft emulation, or Wyse/Pericom products. This implies that ease of set-up and use is limited by access to limited hardcopy provided with the product. A web based help facility is provided on the IBM WBT, but requires an external browser, or internet link to view. The IBM EZNS has fully integrated and translated help text, with context sensitive display, and search capabilities. Without on-line help, or set-up manuals, IBM service and support will be strained by customer questions to support the FutureSoft emulation.
- FutureSoft has no built-in euro support. This needs to be corrected before shipment begins. The Wyse product defaults to euro mode, and the EZNS enables/disables euro mode with a single mouse click.
- The IBM and Wyse WBT emulation products have no MRI translations (US English only). The EZNS emulation products are translated to French, Italian, German, Spanish, Dutch, Swedish, Norwegian, Finnish, Danish, Portuguese, Brazilian Portuguese.
- Futuresoft supports full screen only sessions, with hot key access as the only means to move focus from one session to another. Although multiple emulation sessions can be defined, along with ICA sessions, each session is a full screen operation. For customers requiring multiple windowed sessions, and those that require cut and paste between emulator sessions, this functional shortcoming can be significant.
- Wyse does not support cut/copy/paste at all.
- Determining current Futuresoft keyboard mapping is difficult. Default mapping differs from EZNS and other IBM emulation products. The FS product does not have a graphical mapper. There are no ways to print out the map assignments, and there is no included documentation with the default mapping tables. The Wyse/Pericom product affords no native ability to determine current keyboard mapping.

- No image or graphics, or 5250 text assist (officevision) datastreams are supported by the WBT emulators. This restricts the full set of host applications that can be run with the WBT devices.
- X terminal support  
Although the IBM EZNS has Xterm support, and WBT emulators do not, the X terminal functionality has been de-emphasized with V2R1 development investment. Due to the declining functionality in this area, Xterm can not be claimed as a major differentiator.
- Web delivered configuration files  
The Futuresoft WBT emulation supports web delivered configuration files, with a selection between a mixture of some configuration files available in local storage, and others available from a web server. Our products do not match that functionality, directly, although we share a different split of NSM based (and Configuration Tool based) configuration sources.
- The FutureSoft WBT emulation provides the ability to modify individual code page translate table entries, as well as map key scan codes from nonstandard keyboards, which is well beyond the capabilities of the current NWS based products. Wyse has no such capabilities.
- **In general, the IBM EZNS based emulators have more functionality with the 3270 and 5250 types, while the Futuresoft and Wyse products are stronger in the VTxxx area.**
- As for the Pericom Wyse emulation function, cursor positioning in typematic mode was nearly impossible. Keyboard remapping was nearly non-existent, and it is not possible to determine the current keyboard remapping, unless the user modifies all keys to their liking. (The default, as-shipped layout mapping is not displayable.).
- The Wyse emulation allowed full access to user host system sign-on passwords, with full display of the those passwords, after they had been stored in autologon sequences, and without any other form of device lockdown..
- In general, it was much harder to get the Wyse emulation products configured, as functions pertaining to Vtxxx were mixed with 3270/5250 panels, and parameter controls were scattered in several places, that were not logically connected.
- Wyse, however, is the only product in this comparison to offer the IBM 3151 emulation archetype.

All other functional deficiencies and differences fit well within an entry-level product definition, matching what I understand to be the reduced functional requirements for a WBT marketplace.

In the following table, cells with color codes represent the following:

Red-Significant function missing from FutureSoft or Pericom	Yellow- Function missing from Futuresoft or Pericom	Green-Futuresoft/Pericom function missing from IBM EZNS
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Unless otherwise noted, each functional area item applies to all terminal archetypes (3270, 5250, VTxxx, etc.)

Functional Area	IBM NWS 3270/5250/ VTxx	IBM WBT 3270/5250/ VTxx (Futuresoft)	Wyse WBT 3270/5250/ VTxx (Pericom)
<b>Supported Datastreams:</b>			
<u>3270 Unique Functions</u>			
3279 ExtendedChar Attributes	Yes	Yes	Yes
TN3270E negotiations	Yes	Yes	Yes
Graphics (3179/3278/GDDM)	Yes	No	No
Image/ Viewing	PSS	No	No
APL support	No	Yes	No
Validate Numeric Only input	Yes	Yes	No
<u>5250 Unique Functions:</u>			
TN5250E negotiations	Yes	Yes	Yes
5250/3488 model fcns (EUI)	Yes	No	No
5250 Text Assist/Hex entry	Yes	No	No
5250 5292/BGU Vector Graph	No	No	No (Note8)
5250 3489 Image/Fax Viewer	Yes ++	No	No
5250 AS/400 Console	2ndary only	2ndary only	2ndary only
<u>VTxxx or ASCII terminal functions</u>			
VT52, 100, 102, 220	Yes	Yes	Yes
VT131, VT132	No	No	Yes
VT320	Yes	Yes	Yes
VT340 (Graphics)	No	No	Yes
VT420 (Multiwindow)	No	Yes	Yes
WY 50,60	No	Yes Note 5	Yes
Xterm	Yes	No	No
ANSII	Yes	Yes	Yes
SCO ANSII	No	Yes Note 2	Yes
IBM 3151	No (Note 18)	No	Yes
TV1910,TV1920,TV1925, ADDS A2,HZ1500	No	No	Yes
7 and 8 bit modes	Yes	Yes	Yes

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Functional Area	IBM NWS & EZNS	IBM WBT Futuresoft	Wyse WBT Pericom
<b>Keyboard Related Functions:</b>			
Keyboard types supported			
101 US PC-like	Yes	Yes	Yes
102 Non US PC-like	Yes (18 layouts)	Yes, 10 layouts Note 15	Yes (16 layouts)
122 NPT Native Interface	No	No	No
122 with PS/2 Interface	No	Yes	No
106 key DBCS	No	Yes Note 11	Yes (Claimed)
Graphical Keyboard Mapper	Yes	Not Graphical Note 6	Not Graphical Note 16
Customizable Type ahead	Yes	Yes	No
VT DEC Numlock keyboard mode	Yes	No	Yes
<b>Audio:</b>			
Keyboard click feedback	Yes	Yes	No
Alarm Beep on error	Yes	Yes	No
<b>Input Automation:</b>			
Record/playback	Yes	No	No
Auto Logon	Yes (No on EZNS stage I)	Yes	Yes, VTxxx only
Editable macros	Yes	Yes ( But only 1 per session)	Yes
Light pen mouse emulation	Yes	Yes	No
<b>Appearance Related Function</b>			
Color mapping support (Basic vs Enhanced)	Basic + Enhanced	Basic	Basic
<b>Type of logical session window sizes supported:</b>			
(24x80, 32x80, 43x80, 27x132	3270 All,	3270 All	3270 All
M2 M3 M4 M5	5250 M2&M5	5250 M2&M5	5250M2&M5
Full Screen M2 VGA coverage	Yes	Yes	No
<b>OIA support level:</b>			
Differences 5250/3270 Client	Minor	Minor	Minor
Differences PC EMU/ACT Clnt	Moderate	Moderate	Moderate
Differences to real NPT's	Minor	Minor	Minor

Functional Area	IBM NWS & EZNS	IBM WBT Futuresoft	Wyse WBT Pericom
Rule Line Cursor style	Yes	No	No
Block & Underline & Blink Cursor Customization	Yes	Yes	Yes
Attribute code value display	Yes	No	No
Window resizing support	Mouse	Full Screen only	Full Screen only
	Dynamic	Static	Static
Dynamic font size selection	Yes	Yes	No
with window re-size	Automatic	No resize	No resize
Scaleable Fonts	Yes	Yes	No
Geometry persistence window size/position)	Yes	Full Screen only	Full Screen only
Save/restore session parameters	(via NSM, or Auto)	Geometry N/A Others, Yes	Geometry N/A Others, Yes
<b>Edit cut/copy/paste:</b>			
Mouse driven	Yes	Yes	No (Note 13)
Keyboard driven	Yes	No	No
Menu driven	Yes	Yes	No
Inter-client	Yes	Yes	No (Note 13)
Copy input only option	Yes	No	No
Linear and block marking mode	Yes	No	No (Note 13)
Cursor based or mouse based pnter	Yes	No	No
Line select/word select shortcut	Yes	No	No (Note 13)

Functional Area	IBM NWS & EZNS	IBM WBT Futuresoft	Wyse WBT Pericom
<b>Hotspots:</b>			
Fixed (AKA "Auto Action")	Yes	Yes	Yes
Programmable	No	Yes	No
PF key keypad pop-up	Yes	Tool bar	Tool bar
Customizable general keypad	Yes	Tool bar	Tool bar
Macro assigned to key-pad/tool bar	Yes	No	No
<b>Ease of use:</b>			
On Line Help Viewer	Yes	No	No
With Search	Yes	No	No
Host Name selection Pop-Up	Yes	No	Yes
Persistent session names	Yes	Yes	Yes
<b>Print Support:</b>			
<u>5250 Specific:</u>			
Host Directed:	Yes(HPT)	Yes	No
System Printer emulation	Yes (LPR)	Yes Native	No
	Notes 19,20		
TN5250 RFC 1647 LU 4/7	Yes	Yes	No
525x print emulate	No	P3812	No
<u>3270 Specific:</u>			
Host Directed	No	Yes	Yes
TN3270E RFC 1647 LU 1/3	Yes	Yes	Yes
390 Native print emulation	No	P3287	P3287
<u>VTxxx/ASCII Specific</u>			
Printer escape print datastream	Yes		Yes
<u>Generic Print Functions</u>			
Local screen copy:	Yes	Yes(Note 1)	Yes
(With Trim Print?)	Yes	No	No
Print customize PDT/PDF	Yes	No	No
ASCII/PCL/Postscript	Yes (ALL)	PCL only	???
Redirect to network printer	Yes	Yes(Note 4)	No

Functional Area	IBM NWS & EZNS	IBM WBT Futuresoft	Wyse WBT Pericom
<b>NLS Related Features:</b>			
# of Host Session Language Groups	37(V1R3) 20(V2R1)	17 (missing nl_BE, it_CH, pt_BR)	13, with 9 code pages Note 17
Euro supported for legal minimum	Yes	No (Note 10)	Yes
DBCS(Japan, China(2), Korea)	No	No	No
Bidi (Hebrew/Arabic)	No	No	No
Thai	No	No	No
Host negotiated language	Yes*	No	No
	(3270 NSM Static)		
NLS enabled for Menus, Messages, Buttons, Dialogs,	Yes (11 Languages)	No (English only.)	No (English only.)
Translated Help Text	EFIGS+ (11 Languages) Note 7	No Help	No Help
<b>Miscellaneous Function</b>			
Menu Bar Customization	Yes	Yes	No
- Disable selected menu options	Yes	No	No
Iconic Tool Bar	No	No	Yes (Note 12)
Multisession support	Yes(99), subject to memory size	Yes, (>5) hot key only	Yes, (5) hot key only, see note 14
Dynamic start/stop new session	Yes	Yes	No
Disable user new session start	Yes	Yes (note 3)	No
Auto reconnect on session stop	Yes	Yes	Yes
Screen updated alarm function	Yes	Yes	No
Iconic launch/start-up	Yes	No	No
EHELLAPI/HACL/ECL JVM access	Yes (N/A on EZNS phase I)	No	No
File Transfer/ File system			
TFTP, FTP, RFS, NFS	Note 9		
IND\$FILE	No	No	No
SSL (Secure Sockets) support	Yes	No	No
HTML tag click starts emulation	No(N/A for EZNS phase I)	No (N/A no browser)	No (N/A no browser)



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## Notes:

- 1.) NT utility required for print operations was not available at the time the chart was made. Print support is claimed to work by Futuresoft. The price for this utility is \$750 per server, with unlimited client usage.
- 2.) This function was not verified, and field reports indicate that it is not full function.
- 3.) The only way to disable user start of new session is to totally remove the menu bar, with the side affect of losing other functions, as well.
- 4.) Requires network printer redirector code component (NetPrint) to be installed on an NT in the network.
- 5.) Not full function, does not set transmission speed or other port configurations, scrolling speeds, or turn off monitor.
- 6.) The FS emulators do not use the same default keyboard layouts as the IBM products. This means that migration from one product to the other, or coexistence with both products in the same installation will have different behaviors from the same key sequences.
- 7.) French, Italian, German, Spanish, Dutch, Swedish, Norwegian, Finnish, Danish, Portuguese, Brazilian Portuguese, MRI translations are provided.
- 8.) Although Pericom provides a 5292-2 archetype in the configuration utility, the AS/400 BGU product refused to render graphics on the emulation screen.
- 9.) Other clients provide these file services within the Network Station. The listed file transfer functions are intended to replace IND\$FILE.
- 10.) FutureSoft requires a 30 step procedure to edit character EBCDIC/ASCII translate tables, and to assign a non-standard keyboard sequence to euro codes. This procedure must be repeated for each emulation type to be used. Wyse/Pericom defaults to euro enablement, as standard, and requires no configuration modifications for full euro operation. Native NSM/EZNS emulation employs a single step to select euro enablement.
- 11.) None of these emulators support DBCS natively. 106 key DBCS keyboards are used in English-only mode. ICA utilizes the host NT input methods, so no native client input methods are used in the WBT.
- 12.) Icons only, no floating help descriptions, and no help available, leads user to try each one without knowing the functions being triggered.
- 13.) No mouse marking functions seemed to work, although mouse action configuration options indicated that this function should be available. In web based PDF files found on the Wyse site, it was acknowledged, that even though these options appear, they are not functional.

- 14.) Ran out of memory (16MB system) when attempted 6th emulation session. I had 1 VTxxx, 2 3270, and 2 5250 sessions running.
- 15.) US English, UK English, French, German, Italian, Spanish (Spain Spanish), Danish, Finnish-Swedish, Norwegian, Swiss (Switzerland French, Switzerland German). The following keyboard layouts are proposed for support after initial GA: LA Spanish, Belgium English, Dutch, Czech, Polish, Japanese, ISO English
- 16.) Wyse/Pericom does not provide a means to discover the current, or default mapping.
- 17.) Wyse/Pericom documentation shows the following host EBCDIC code pages supported: Swiss(French/German), Swedish/Finnish, Spanish, Italian, German/Austrian, French, Danish/Norwegian, UK English, US English/Canadian Bilingual/Netherlands
- 18.) Not in the shipped product, however an IBM 3151 character/echo mode emulation prototype does exist.
- 19.) AS/400 supports LPR/LPD related print operations, S390 does not.
- 20.) AS/400 support uses Host Print Transform functions, there is no equivalent for this is S390. (i.e. There is no native 3270 host directed print.)