IBM NetVista Thin Client
N2200w Windows-Based Terminal

Brief Introduction to Emulators

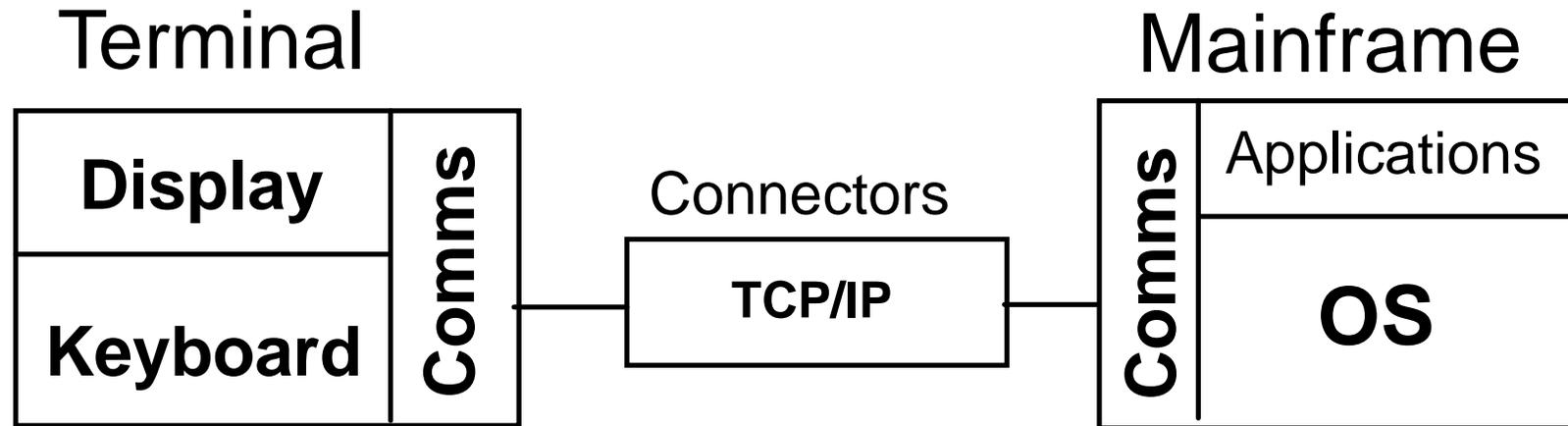July 2000
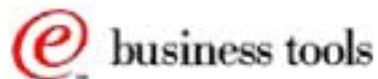
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Terminal to Host Topology

NetVista

Terminal

Display	**Comms**
Keyboard	

Connectors
TCP/IP

Mainframe

Comms	Applications
	OS

Emulations	Hosts
VTxxx, WYSE, ANSI	Unix Hosts RS6000 Sun SCO Red Hat HP9000 etc…
TN3270, TN3270 Print	IBM S/390
TN5250, TN5250 Print	IBM AS/400

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Notes

Objective:

This presentation provides a brief introduction to the emulators available on the IBM NetVista N2200w Windows Based Terminal. As these emulators are fairly standard, and that there is a good set of online help files available, we only intend to provide some highlight and insight into some of the features and functions.

These emulators are provided by FutureSoft Inc. They include:
- A 3270 and 5250 emulator based on the TN3270E and TN5250E protocols
- Several character-based type emulators

Terminal Types

- **Asynchronous (Character Based) Terminals**
  - ANSI-BBS (with SCO ANSI extensions)
  - Digital VT-52,100/102,220,320 and 420
  - Wyse 50/60

- **Synchronous Block Mode (Transaction based) Terminals**
  - TN3270E
    - 3278 (Models 2,3,4 and 5)
    - 3279 (Models 2,3,4 and 5)
  - TN5250E
    - 5250 (Models 2 and 5)

Notes

Here are some more details on the terminal types supported.

The supported asynchronous character based) terminals include:
- ANSI-BBS (with SCO ANSI extensions)
- Digital VT-52,100/102,220,320 and 420
- Wyse 50/60

The supported synchronous block mode transaction based terminals include
- TN3270E
  - 3278 (Models 2,3,4 and 5)
  - 3279 (Models 2,3,4 and 5)
- TN5250E
  - 5250 (Models 2 and 5)

Features and Capabilities

- **Auto-Login Macro**

- **HTTP remote file support**

- **Keyboard Mapping Editor**

- **Attribute Mapping Editor**

- **Character Mapping Editor**

- **Hotspots**

- **Control character key map support**

- **Export file capability (Save/Load session properties)**

- **Network Print and Local Print (raw)**

- **Display Features**
  - Selectable/sizeable fonts
  - Number of rows/columns
  - Status bar/Scroll bars
  - Session Buttons

- **Keyboard Features**
  - Launch scripts
  - Launch applications
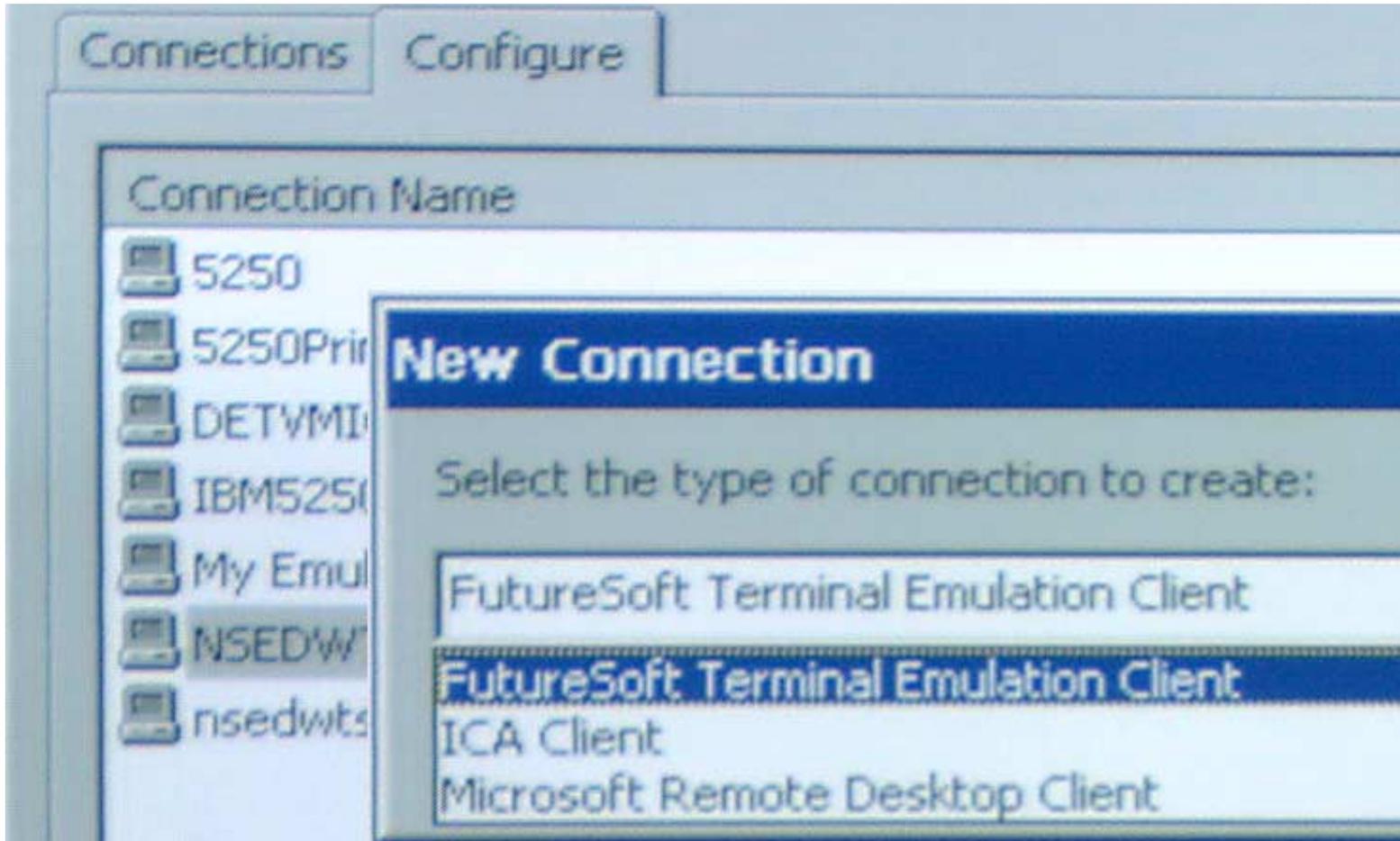 - Send String
  - Send Terminal Key

Notes

Here is a list of the main features and functions that these emulators provide.
- Macros for Auto-Login scripts
- Keyboard Mapping Editor allowing a remap of the keyboard
- Attribute Mapping Editor to map host attributes to local attributes
- Character Mapping Editor to translate character from the host and vice-versa
- Hotspots Mapping to make characters or strings on the display triggers actions
- Export file capability allowing to save or load session configuration properties
- Network Print and Local Print (raw) allowing emulators to print to any remote network printer
- Display features, such as selectable/sizeable fonts, number of rows/columns, status bar and scroll bars, and session buttons
- Keyboard Features, such as the ability to launch scripts, applications, send a string or a terminal key

There are a few restrictions to be aware of, such as the fact that there is no trace capability and that the number of session instances is dependent on the amount of available RAM. Application space is also dependent on the available ROM

New Connection - Emulator

Connections | Configure

Connection Name

- 5250
- 5250Prin
- DETVMI
- IBM525(
- My Emul
- NSEDW
- nsedwts

New Connection

Select the type of connection to create:

FutureSoft Terminal Emulation Client

FutureSoft Terminal Emulation Client
ICA Client
Microsoft Remote Desktop Client

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Notes

We do not intend to present every configuration panel that you can run into, but to show al least some of the main panel to give you an overall perspective on the configuration parameters that are available.

Each emulation session is considered a connection and is therefore added to the Terminal Connection Manager panel, which is the main WBT panel.

This is accomplished by selecting the **Configure** tab and clicking on the **Add** button, which brings up the New Connection panel that is displayed here, on which there is a choice of three types of connections:
- Adding an Emulator client (FutureSoft Terminal Emulation Client), which is what we are discussing here
- Adding an ICA client
- Adding an RDP client

Export Session Configuration

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Notes

A click on **FutureSoft Terminal Emulation Client** displays a panel such as the one shown here in the top left hand corner.
- Enter a description that will be the name of the connection appearing on the Terminal Connection Manager panel.

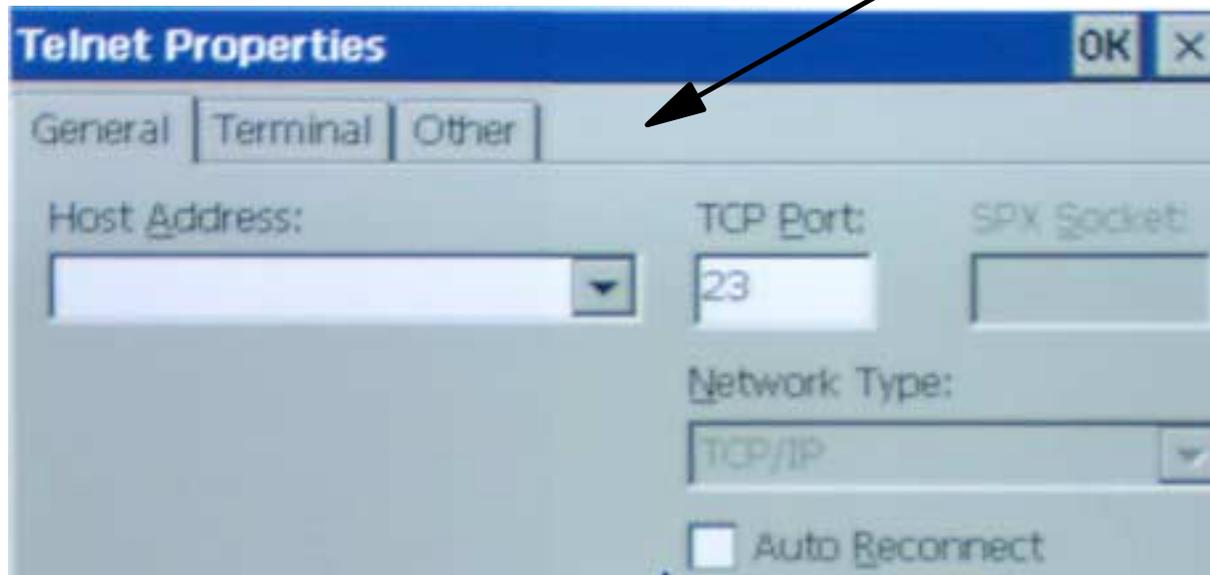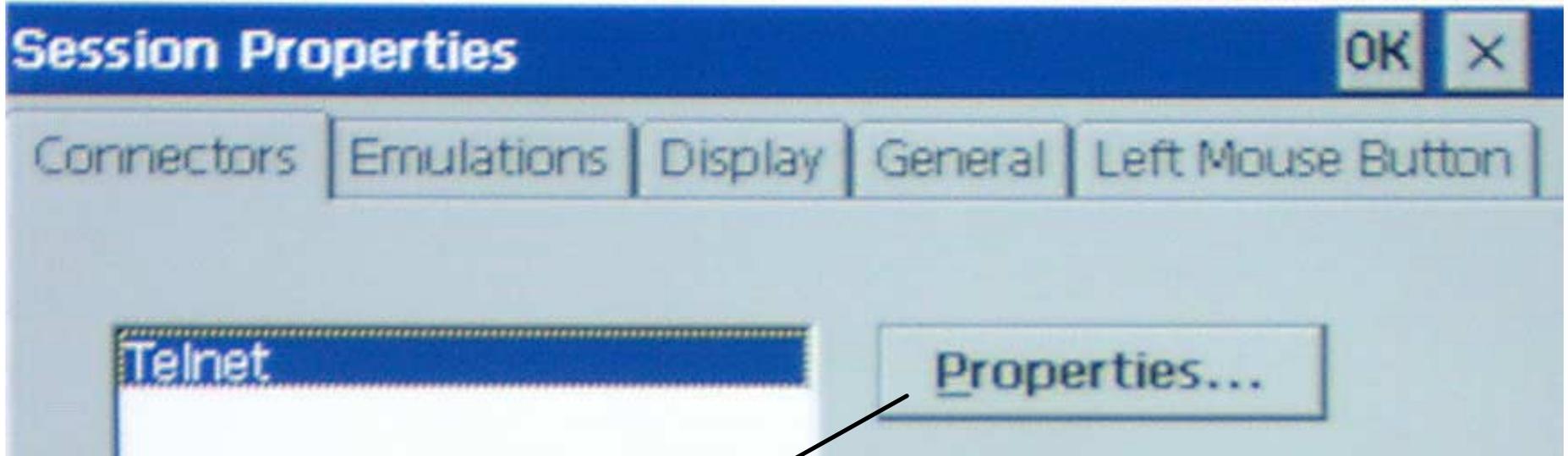Then there are two choices in other to configure a connection:
- If the connection configuration already exists on an HTTP server, it can be downloaded from that server by specifying a URL in the URL field after clicking on the radio button labeled "**Download configuration from Web server**".
- If it does not already exist, click on **Properties** in order to access a series of panels that allows the configuration parameters to be entered.

Notice the **Export...** button!   After you used the Properties button, and configured all the required parameters for this connection, you can return to this panel and Export the configuration information to a server. The panel in the bottom right hand corner shows the information required when clicking on the Export button. Once the configuration has been exported to a server, it can then be specified as being downloadable from a web server.

Telnet Properties

Session Properties OK ×

| Connectors | Emulations | Display | General | Left Mouse Button |

Telnet

Properties...

Telnet Properties OK ×

| General | Terminal | Other |

Host Address:

TCP Port: SPX Socket:

23

Network Type:

TCP/IP

☐ Auto Reconnect

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Notes

The first task when defining an emulator session is to specify the destination host, which is done using the Connectors tab on the session properties, as illustrated in the top panel.

A click on Telnet Properties brings up the second panel where the host address can be specified. TCP/IP is the only available choice for a network connection.

Other minor parameters can be found under the additional tabs labeled Terminal and Other.

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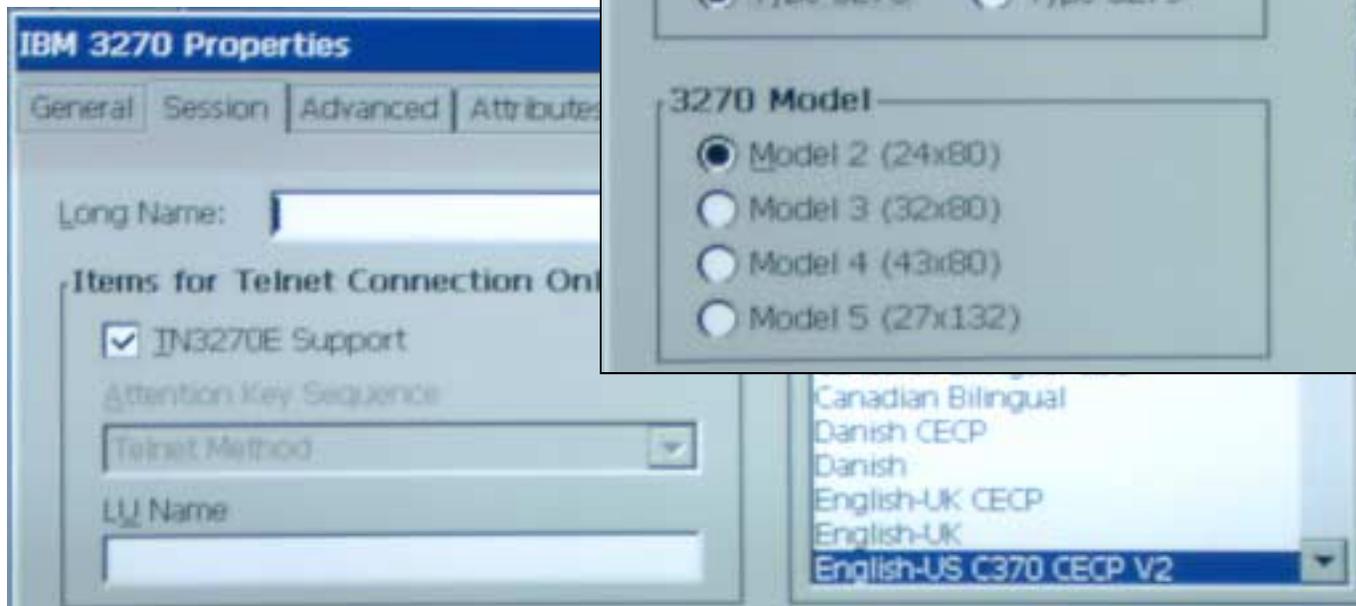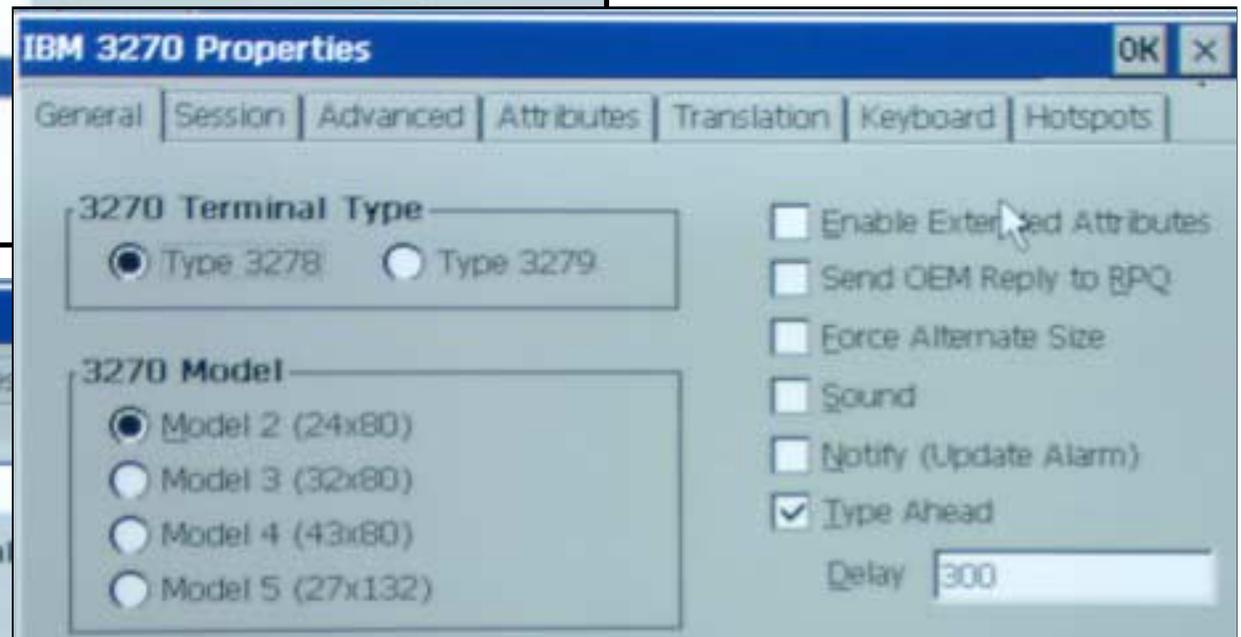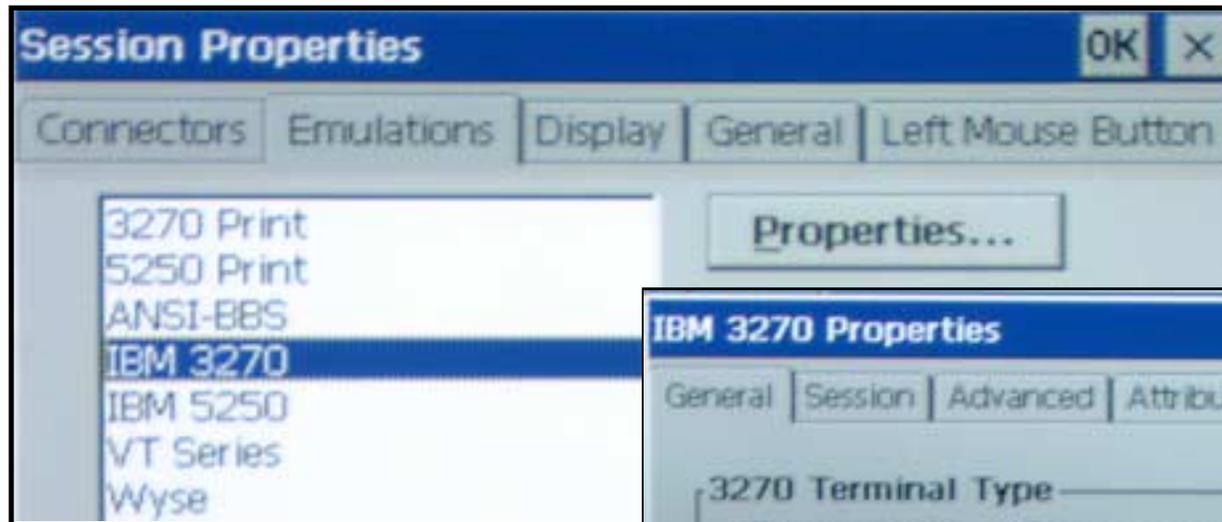
Emulation Type

Notes

Next, use the Emulations Tab on the Session Properties panel to select the type of emulation required. The selectable types are displayed here in the top left hand corner panel, which are basically either 3270, 5250 or a few character-based type of emulators.

As an example, if we select IBM 3270, and click on Properties, the panel shown in the middle of the page, on the right, is displayed.

Notice that there are seven tabs that can be selected;
- General, Session and Advanced that deals mostly with the type of emulation and the session characteristics
- Attributes, Translation, Keyboard and Hotspots that all deal with some form of mapping of characters or keys. Each of these in fact can specify a special file to use as a map.

On the Session tab, illustrated in the bottom panel, you can enter a long name, which is a name that appears in the Operator Information area (OIA) at the bottom of the session in order to distinguish sessions from each other when there are more than one session active. This is not a required field.

The next decision is whether to operate as a normal TN3270 or as a TN3270E (extended mode) which allows a fuller support of 3270 functions such as the support of the ATTN and SYSREQ keys for example. In TN3270E mode, an SNA LU name can be specified in order to use a specific LU on the host. Otherwise, if not specified, it uses the next available LU from an LU pool.

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Character/Attribute Map Editors
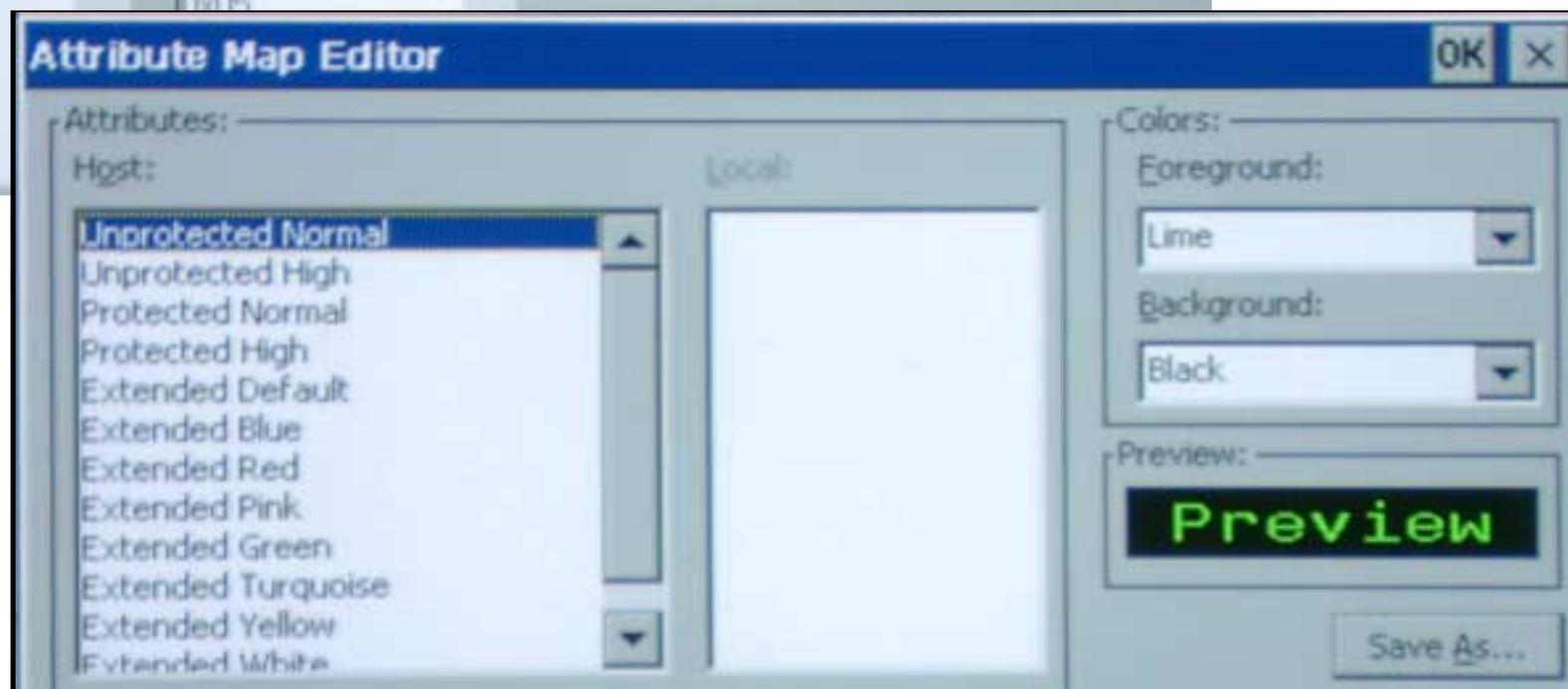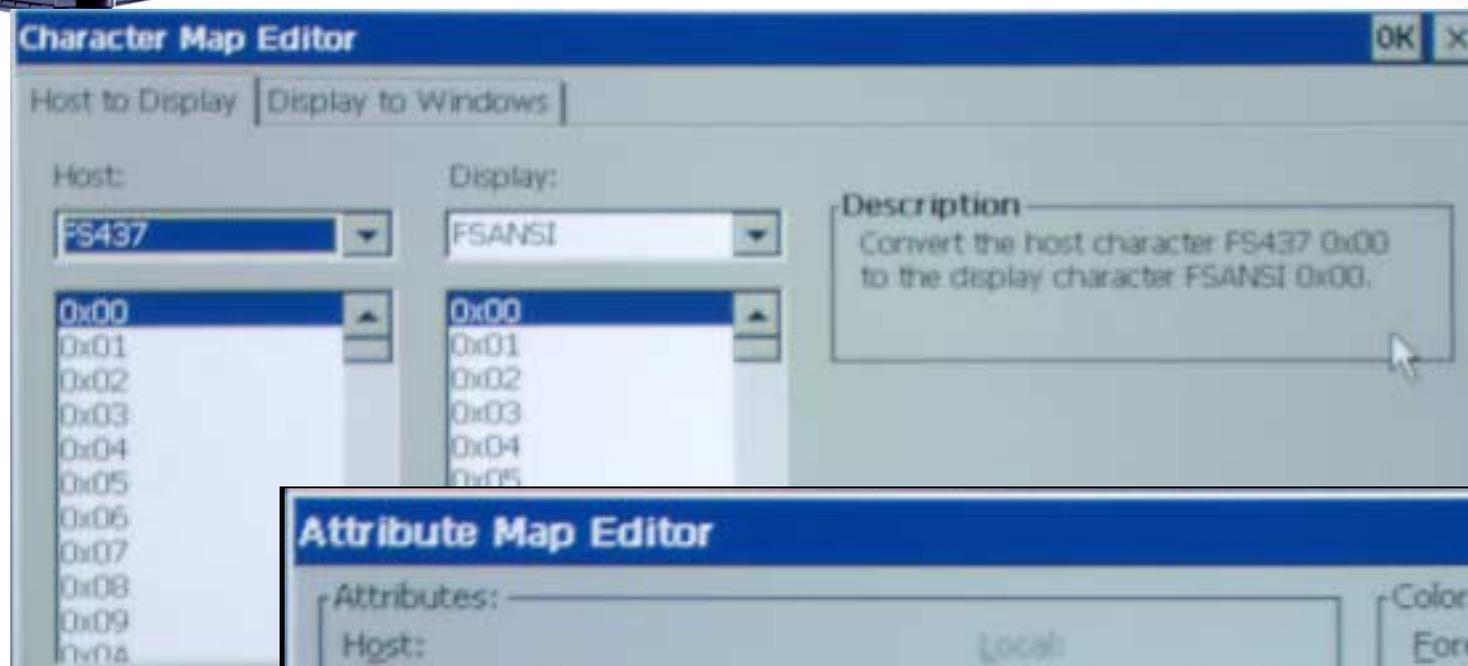
Notes

Here are a sample of the Character Map Editor and the Attribute Map Editor.

- The first one (Character Map Editor) allows translation of characters received from the host to the emulation display session, and from the emulation display session to the Windows clipboard.

More details on the character map editor can be found in the online reference under the Dynace help file.

- The second one is the attribute map editor that allows the selection of a character or field attribute on the host side (in the left column) and to determine how this attribute is going to be mapped locally. Either a list of attributes appear in the local column, from which one can choose, or a set of foreground and background colors can be chosen.

More details on the attribute map editor can also be found in the online reference under the Dynace help file.

Hotspots

Notes

Each emulation has a default set of hotspots. The default map cannot be changed but it can be used as a base, edited and saved to create your own map file.

Hotspots are characters or strings that can be highlighted in the session window and be associated with a terminal function, or send a string or perform a menu option when clicked.

Hotspots can be chosen from the list that appears here or new ones can be added . Each hotspot can be mapped to a terminal function, as selected in the bottom left hand corner of the panel, or to a string.
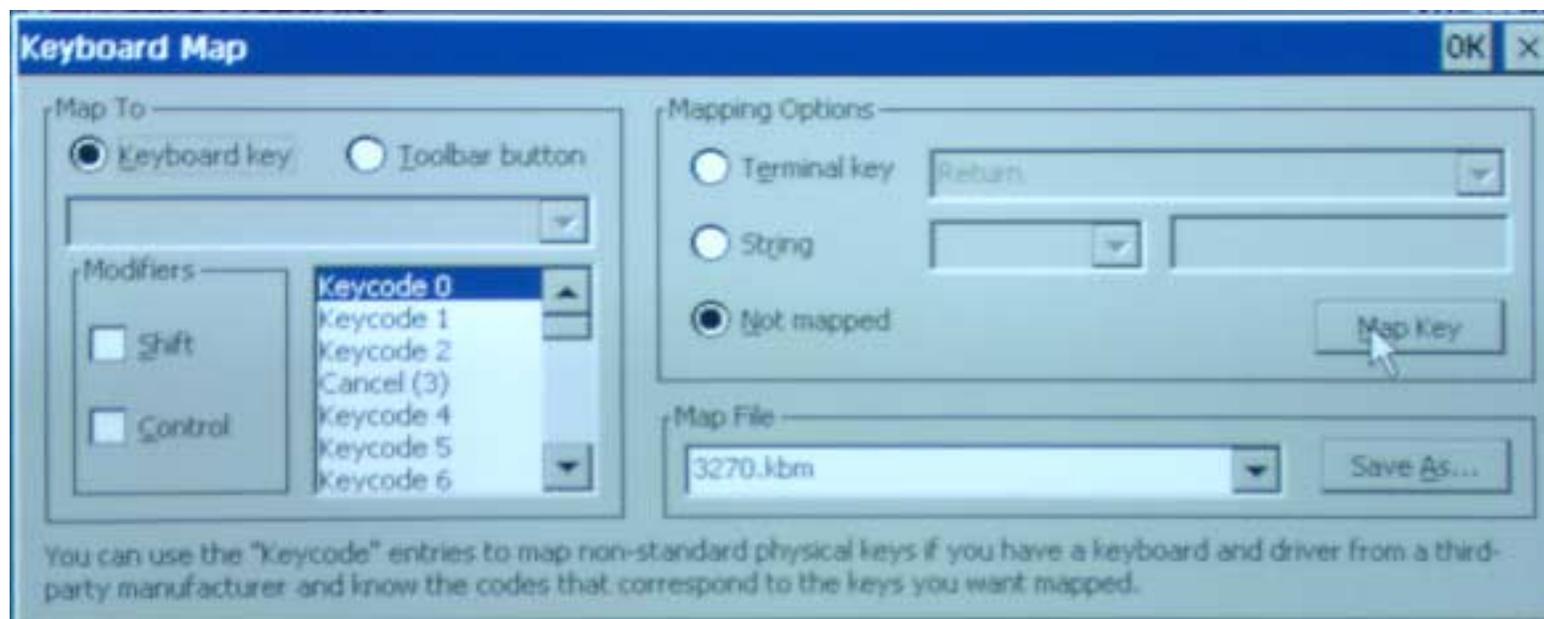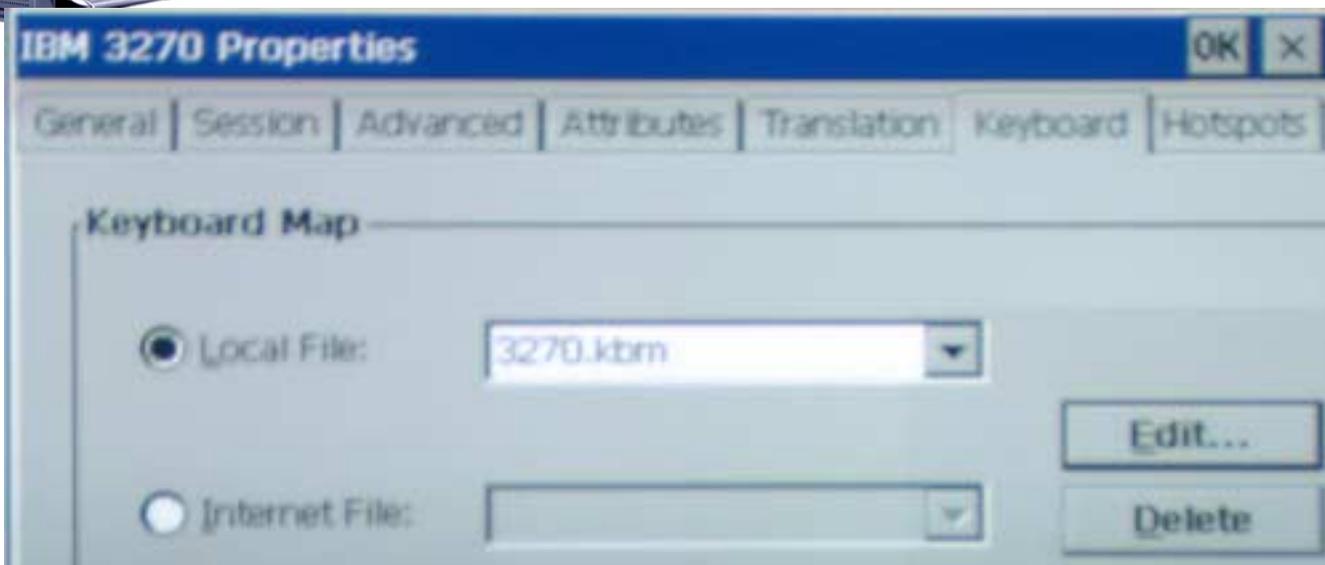
A range (row/column) can be also specified in which to search for the hotspot.

See hotspots in the Dynace help for more detailed information.

Keyboard Remap

NetVista

IBM 3270 Properties — OK ☒

General | Session | Advanced | Attributes | Translation | Keyboard | Hotspots

Keyboard Map

- ⦿ Local File: `3270.kbm` ▾   Edit...
- ○ Internet File: ▾   Delete

Keyboard Map — OK ☒

Map To
- ⦿ Keyboard key   ○ Toolbar button

[▾]

Modifiers
- ☐ Shift
- ☐ Control

Keycode 0
Keycode 1
Keycode 2
Cancel (3)
Keycode 4
Keycode 5
Keycode 6

Mapping Options
- ○ Terminal key   Return ▾
- ○ String   [▾] [ ]
- ⦿ Not mapped   Map Key

Map File
`3270.kbm` ▾   Save As...

You can use the "Keycode" entries to map non-standard physical keys if you have a keyboard and driver from a third-party manufacturer and know the codes that correspond to the keys you want mapped.

Notes

And of course, the keyboard remap editor that allows to select any key on a keyboard and remap it to either a terminal key or a string.
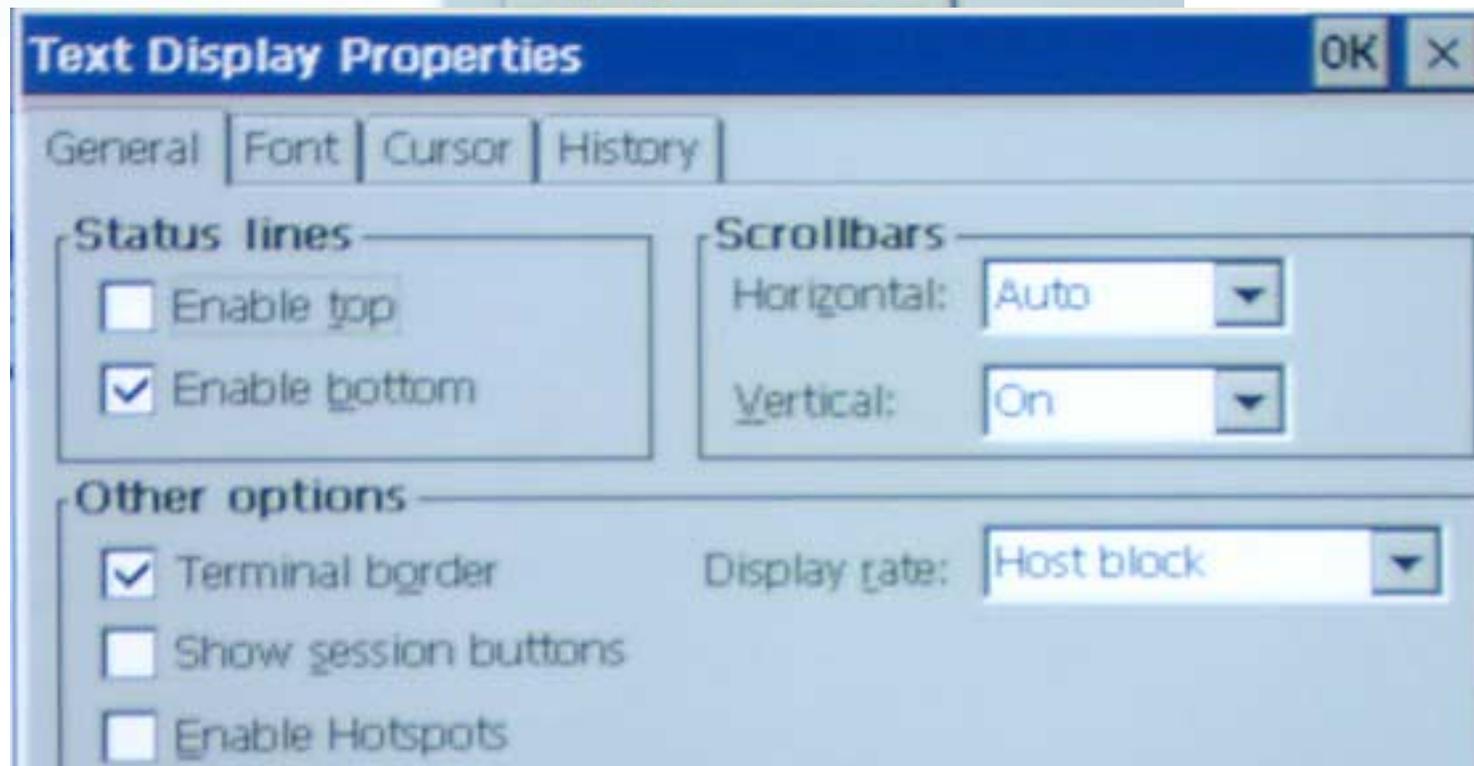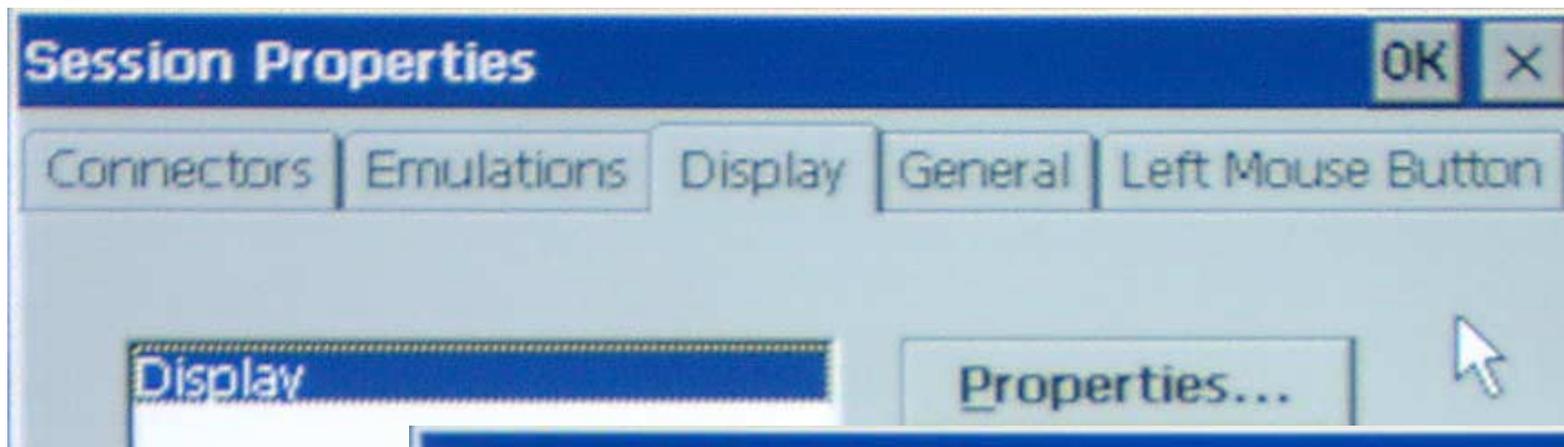
Standard keyboard map files are provided and any can be used as a base and saved under another name for a customized keyboard map.

Instructions to use the keyboard map editor are in the Dynace Help Files.

Text Display Properties

NetVista

Session Properties — OK ✕

Connectors | Emulations | Display | General | Left Mouse Button

Display   Properties...

Text Display Properties — OK ✕

General | Font | Cursor | History

Status lines
- ☐ Enable top
- ☑ Enable bottom

Scrollbars
Horizontal: Auto
Vertical: On

Other options
- ☑ Terminal border
- ☐ Show session buttons
- ☐ Enable Hotspots
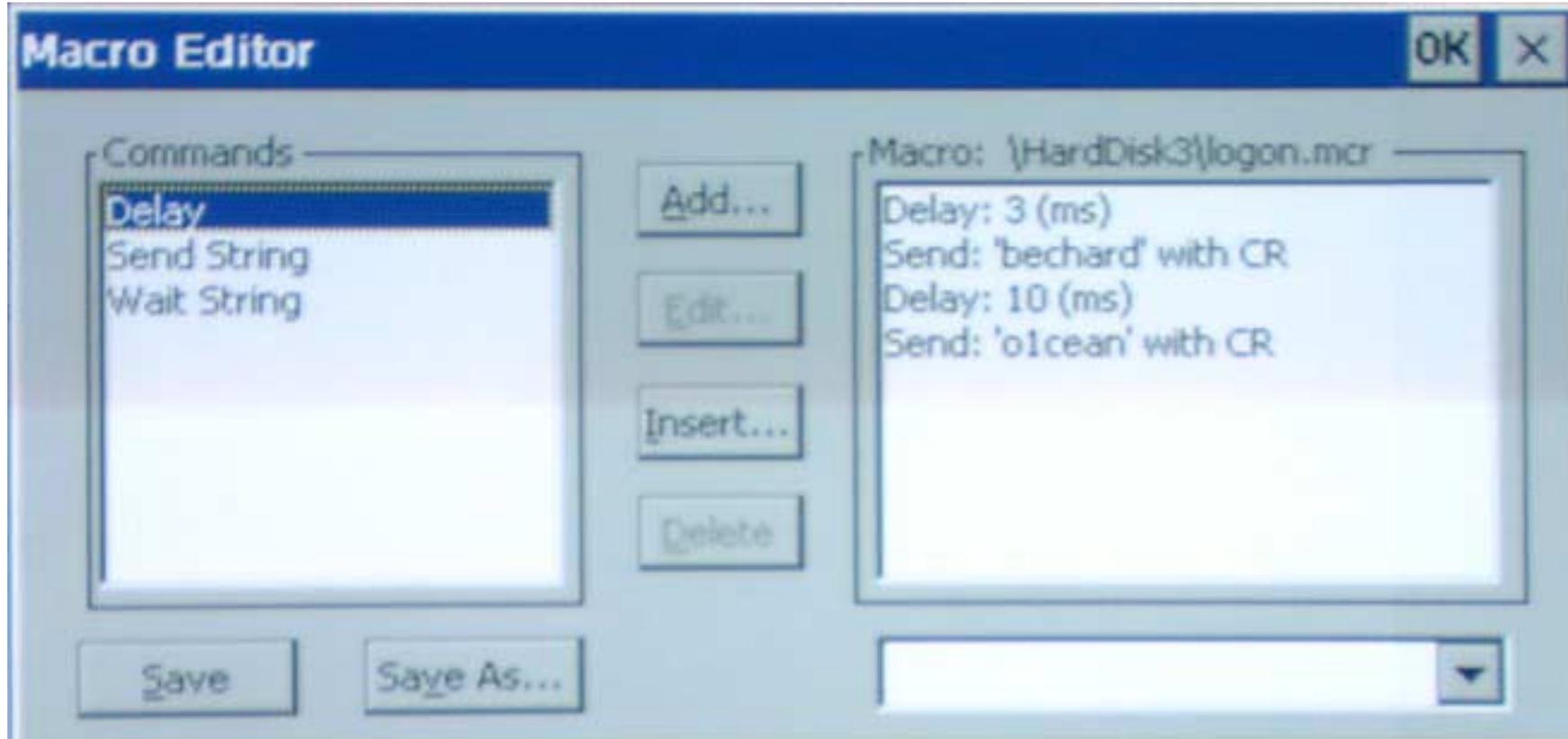
Display rate: Host block

Notes

The display Tab brings up another series of panels with four tabs.

These basically allows the user to choose how his session window appears, such as positioning status lines at the top or the bottom of the screen, using scrollbars or not, and using borders and enabling hotspots.

Macro Editor

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Notes

The emulator also includes a macro editor that allows the creation of scripts that can be executed to perform such functions as an automatic logon for example.

This is what is illustrated here where the script starts with a delay of 3 milliseconds, then it sends the string bechard, waits for another 10 msec, and then sends another string called o1cean.

A macro can be configured to be started automatically on connect or it can be manually started from the session pulldown once the session is connected.

Left Mouse Button Properties

NetVista

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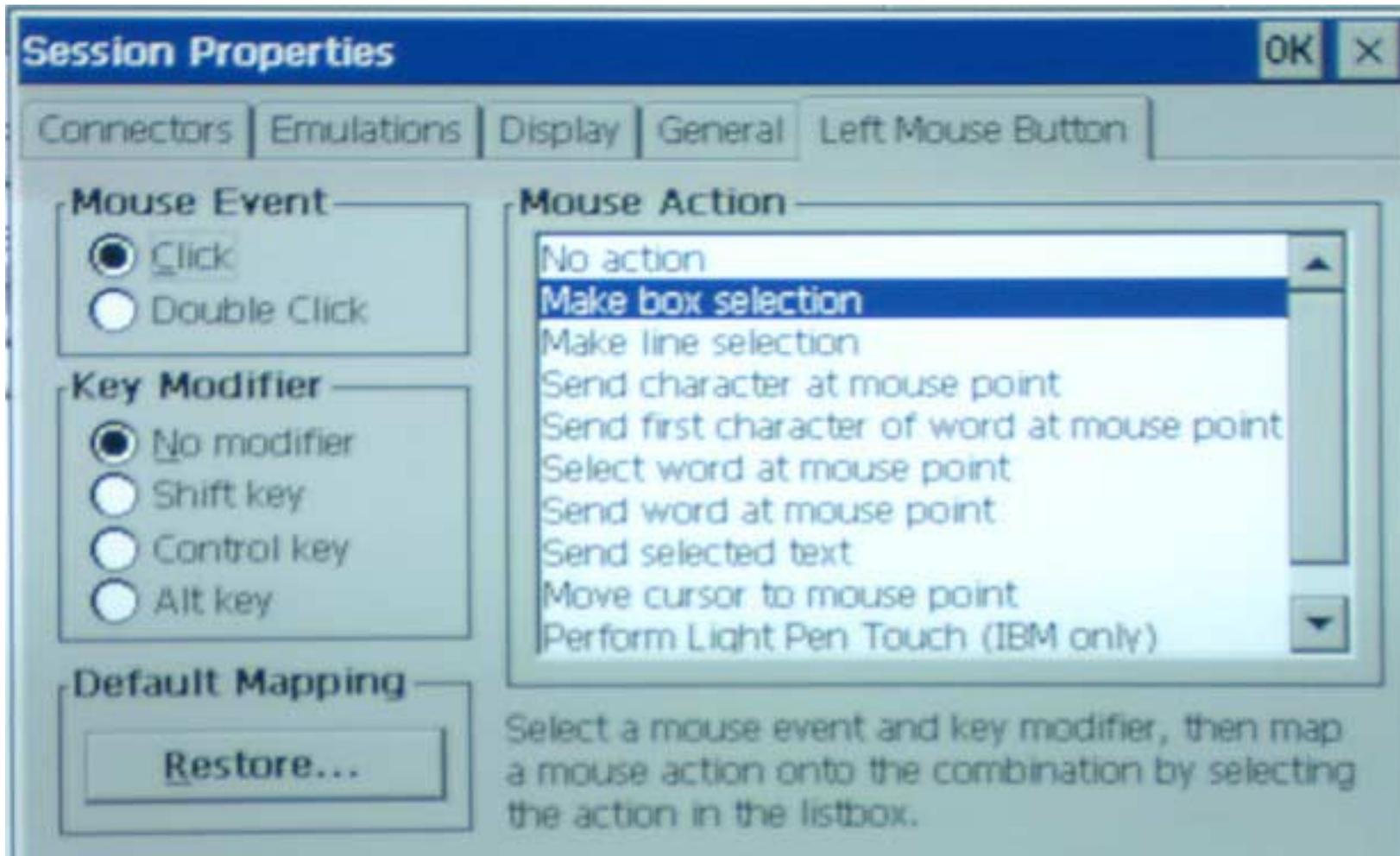
Notes

This allows the user to assign actions to the mouse events such as click and double click.

For example, if I select Click, and then ALT Key, and then Send character at mouse point, everytime I hold the ALT key and click on a character, that character will be entered on the command line or wherever the cursor is positioned.

VT420 Properties

VT420 Properties   OK ×

| General | User Defined Keys | Language | Attributes | Translation | Keyboard | Hotspots |

Terminal model   VT420 (default) ▼   ┌Host modes──────────

Lines per screen   24 (default) ▼   ☐ Local echo

Columns per page   80 (default) ▼   ☐ Auto line wrap

Send controls   7-bit (default) ▼   ☐ Newline mode

Backspace sends   DEL (default) ▼   ☐ Numpad application

Answerback   VT420   ☐ Cursor keys application

☑ Allow ANSI colors   ☐ Light screen

☐ Display controls mode

Notes

Finally, maybe a last panel on the VTxxx emulation type that shows some of the parameters more particular to this type of emulator.

Again, more details on these individual parameters can be found in the online Help files that can be installed on a Windows Terminal Server and accessed via an ICA or RDP session.

These files are downloadable from the www.ibm.com/nc/pubs web site.

Online Help/Documentation

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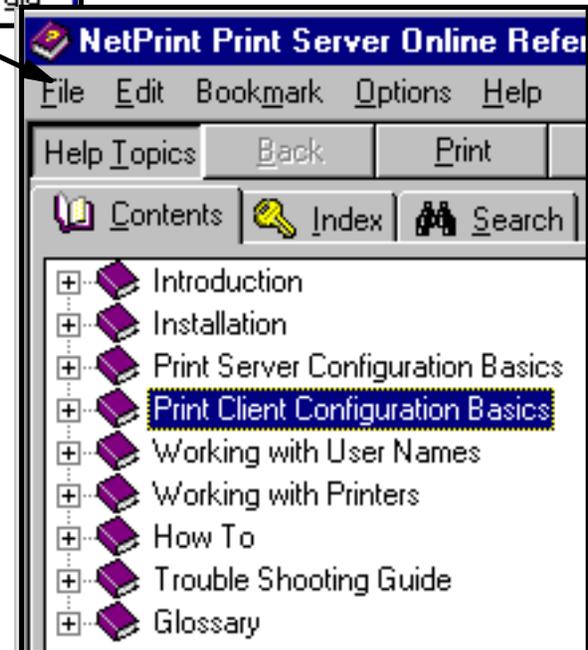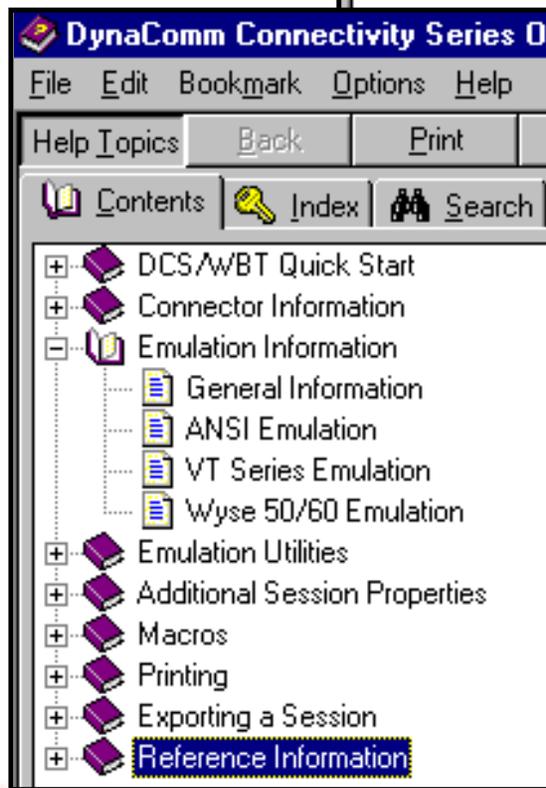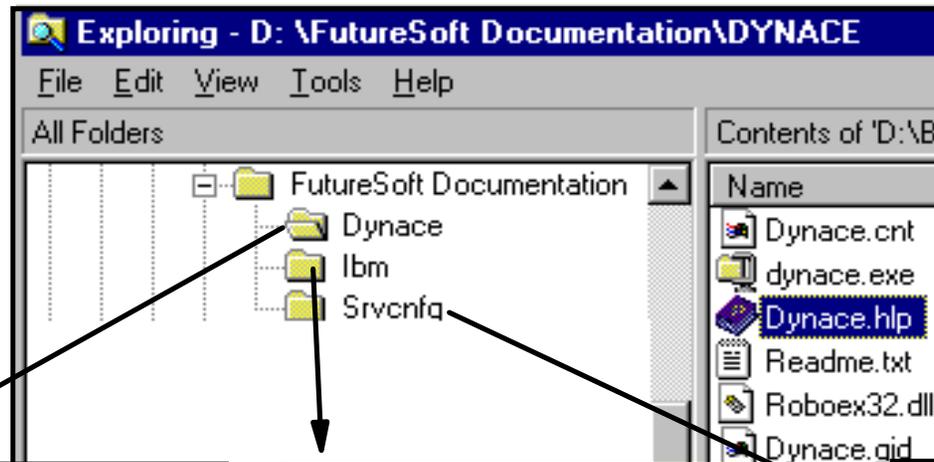
Notes

Other files that downloadable from the www.ibm.com/nc/pubs web site are the Emulator Help files.

These online help files are not available on the WBT itself but rather on the Windows Terminal Server.

Once you download these self extracting emulator help files to a Windows terminal server, and run the self extracting exe, the help files illustrated on this page are installed.