

User Manual

TC-200



Introduction TC-200

Product Description

The TC-200 provides the fastest Thin Client performance on the market, It runs embedded Linux, swing user interface, Citrix 6.3, Microsoft RDP 5.1 and XDMCP connections all at unparalleled speed, TC-200 is a Thin Client designed for use as a local workstation in Microsoft Windows, Citrix and UNIX / Linux terminal server environments. Current user guide applies for TC-200 software version.

The TC-200 connects through a local area network (LAN) to a terminal server running Microsoft Windows NT 4.0 Terminal Server Edition, Microsoft Windows 2000 Application Server, Windows 2003 Terminal Server or Citrix MetaFrame XP and WinFrame software.

Now you have the ability to add value and power to your IT infrastructure and at the same time deliver a consistent computing environment through out your business.

Licenses Notice

TC-200 allows instant connection to Windows NT Terminal Edition, Windows 2000 server and Windows 2003 server using Remote Desktop Protocol service. Some software is licensed for use on a single computer while other software may be licensed for single or multiple users. It is the responsibility of the purchaser/user to read and comply with the licensing agreements of any software that may be used on the RDP devices.

Terminal Service Client license may be required for each RDP device connected to Windows NT Terminal server, Windows 2000 Server or Windows 2003 Server.

Hardware

TC-200 has

- x86 CPU at 200 MHz
- 128Mb of SDRAM memory (8Mb dedicated for graphics controller)
- integrated accelerated 2D graphics controller
- 32 MB of “Flash Disk” for storing embedded Linux image and settings
- 10/100 BaseT Fast Ethernet connector
- PXE Boot ROM Agent
- 2 PS/2 ports for PS2 Keyboard and Mouse
- USB ports for USB printer or storage device
- Headphone and microphone connectorsSVGA monitor port
- No moving parts

Additional Features:

- External power adapter

Physical Features:

- Modeling plastics housing
- Dimensions: 133 mm x 63 mm x 111 mm
- Weight: 850 g with power supply
- The best video resolution is 1024 X 768 pixels @ 85 Hz and 16 bit colors. At lower resolutions also the true-color setting is possible.
- TC-200 is powered by an external, agency approved power supply and the total power consumption is under 10 watts.

Software

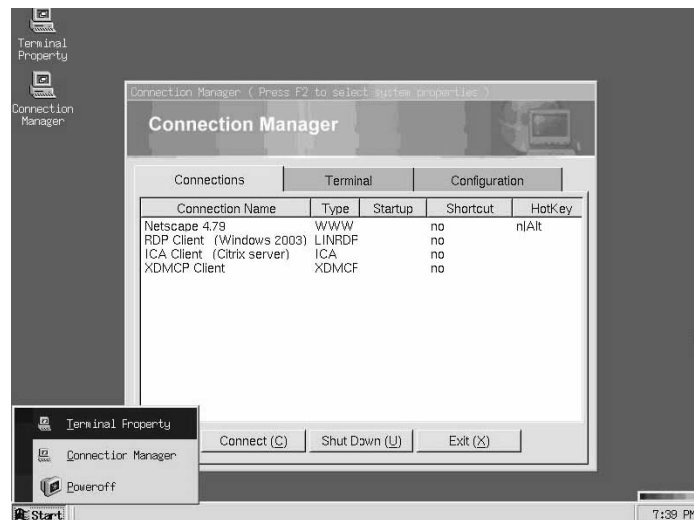
TC-200 was designed using the embedded Linux operating system, customized to the TC-200 hardware and operational requirements. The complete software image resides in 32 MB of on-board flash disk. The functions included in the TC-200 software are:

- Client supporting Microsoft RDP 5.1 (enables audio and true color forwarding from/to server)
- Citrix ICA Client version 6.3
- XDMCP viewer (enables audio forwarding from server)
- VNC server and view Samba service
- Desktop Terminal Shell for managing connections (enables multiple simultaneous connections and switching between them)
- Setup utilities (Control panels, flash programmer etc.) Linux base components and drivers
- The TC-200 is able to boot Linux from on-board Flash Disk, or even boot from Diskless node by build-in PXE (Pre-Execution Environment) boot agent this way creative users can build a very custom TC-200 device, which can do more than just be a dumb terminal.

When TC-200 is running, it automatically connects to the network and tries to get an IP-address using the Dynamic Host Configuration Protocol (DHCP). If a DHCP server is not available on the network, TC-200 can be configured to use a fixed IP address and associated network settings. These are supplied by the user and configured via the TC-200 setup utility along with other environment setup.

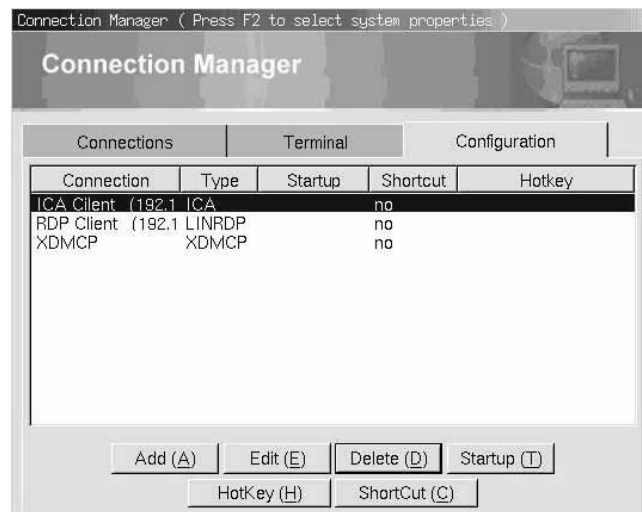
1. Connection Manager

Connection manager is the utility where you create all your connections in TC-200. You can create multiple connections in connection manager and use whichever one you want at any time. There are different types of connection you can create such as RDP, ICA, VNC viewer or XDMCP.



To begin creating your connection you need to click on the configuration tab. Here you will find the button to add, edit, delete and startup connections.

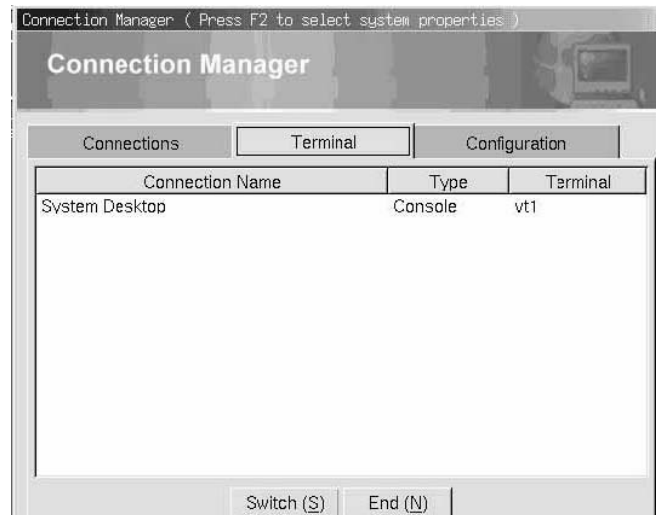
By pressing the “Startup” button you can select if the selected connection in the list will be the default one or if it will be automatically started at terminal startup.



Under the terminal tab, you can switch between each connection. Each connection is running under individual virtual terminal. By default, desktop is running under virtual terminal 1(vt1) listed below. Or you can switch between each Virtual terminal using hot key.

For vt1, its hot-key is “Ctrl-Alt-F1 so, at any moment, you can switch back to desktop using this hot-key.

For each additional connection session, the hot-key will add on progressively. This means the next session will be “Ctrl-Alt-F2 respectively and adds up.

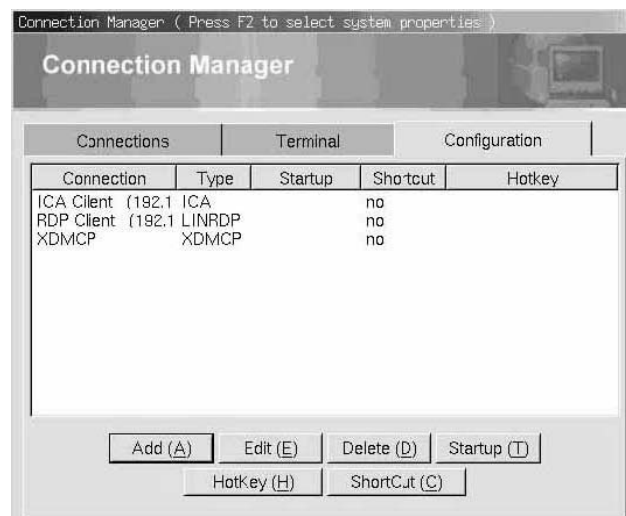


Under the terminal tab, you can also end a virtual terminal simply by highlighting the session and click on the “End” button.

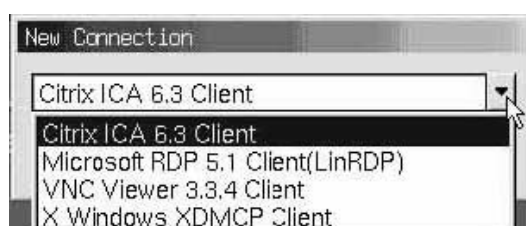
1.1 Defining RDP Connection

In order to connect to your Windows Server, you must make sure your Windows server is enabled with Terminal service and Terminal service licensing.

First, you must create a RDP 5.1 connection by clicking the add button under the configuration tab of the Connection manager as shown below.



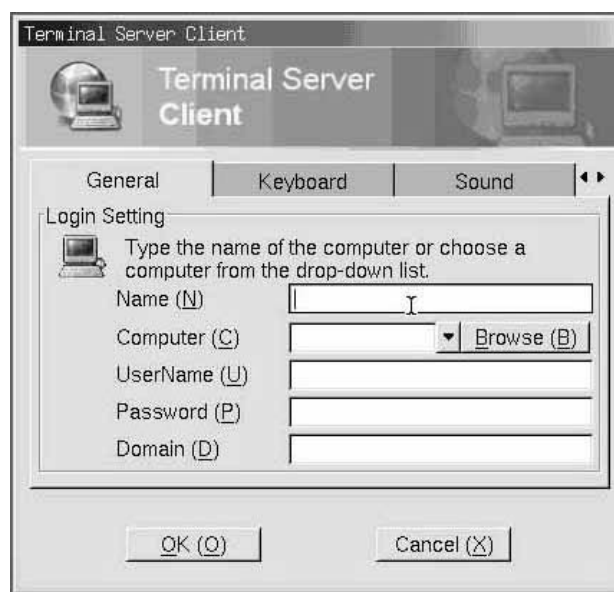
After you have click on the “Add” button, you will be asking with a pop-up dialog to select your connection type. Please select RDP 5.1 to connect to a Windows Server.



Select the RDP connection and a dialog box will pop-up as shown below.

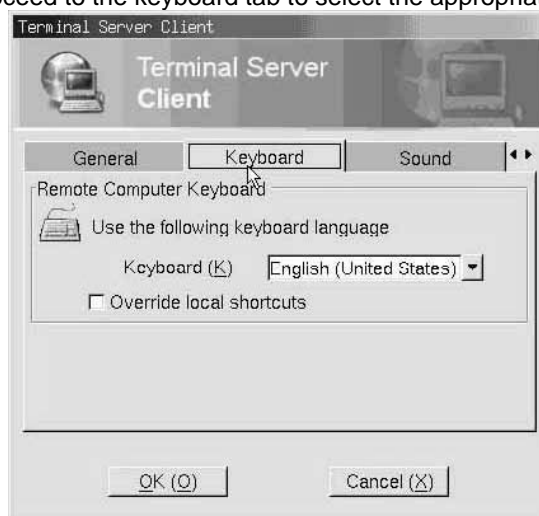
1.1.1 General Setting

Entry Item	Description
Name	Please enter a connection name for the RDP connection under the name entry box. Example: "Server1".
Computer	Type in the IP address of the windows server in the computer entry box it could be IP address or DNS name. You can also use the browse button to have automatically located your Windows Terminal Server within a network.
Username	You can type in your username here. This will eliminate keying username again during Windows login
Password	You can type in your user password here. This will eliminate keying password during Windows login.
Domain	You can type in your network domain name here.



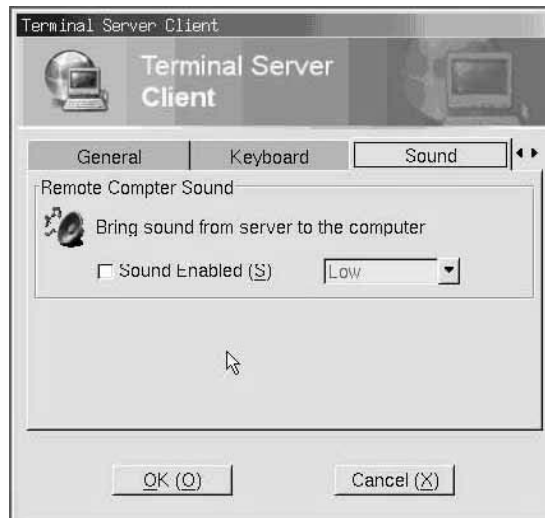
1.1.2 Keyboard Setting

Once this is done you can proceed to the keyboard tab to select the appropriate keyboard for your connection



1.1.3 Sound Setting

Select sound enabled if you are using RDP 5.1 and connecting to a Windows 2003 Server. Windows NT TSE and 2000 server do NOT support sound redirection.



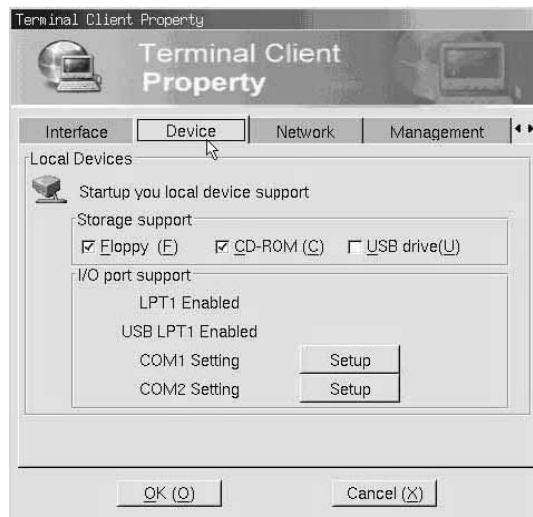
1.1.4 Local Resource Setting

Local storage is only supported when connecting to a Windows 2003 Server such as USB CD-ROM, Pen Driver devices.

By default, it is disabling when setting up a RDP connection.



To setup this support, you must enable Storage support under the device tab in the Terminal property shown below.



Once this is enabled RDP 5.1 connection will be able to select local storage support when connecting to Windows 2003 server.

For local printer thru LPT or COM port, you must also enable it in the Terminal client property shown above for RDP connection to select it.

Enable each setting accordingly for your TC-200 to use local peripheral devices.

1.1.5 Program Setting

After you have specified your Windows server and local device support. Each connection can also be defined to run a specific application from the server when connected.

This is especially helpful for POS or dedicated station where specific application is only needed to launch when the unit is turned on.

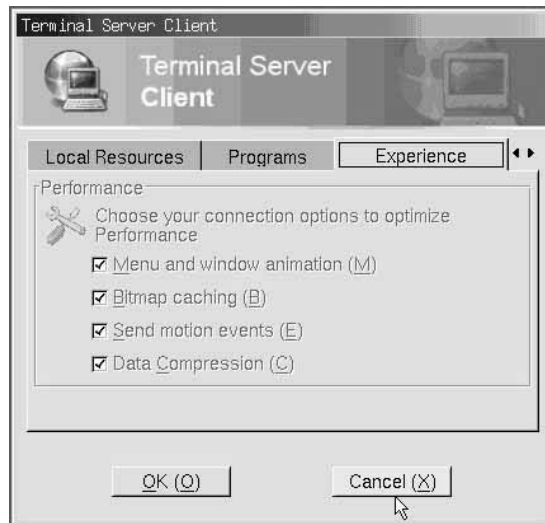
By default, this feature is disabled during RDP setting.



1.1.6 Experience Setting

Depending on your network speed you can disable menu and windows animation to enhance the remote desktop refresh rate.

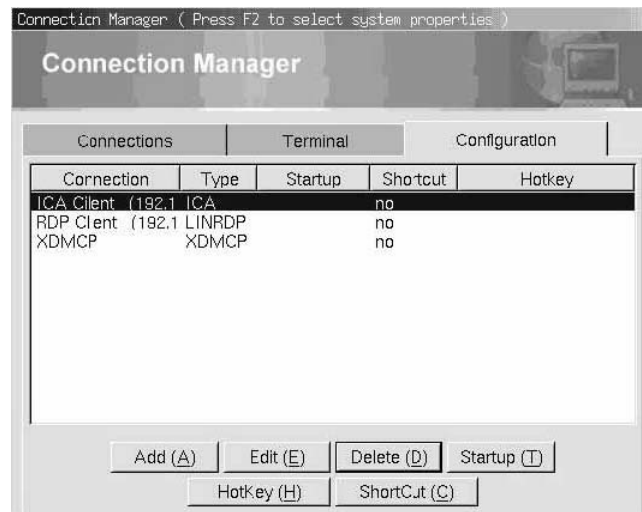
By default, all options are enabled for best remote desktop experience.



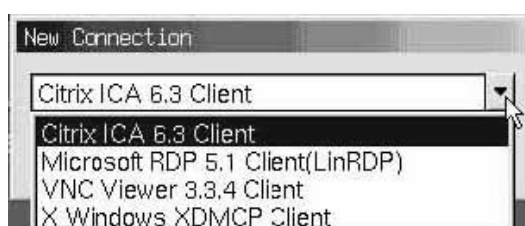
Click "OK" to finish the RDP creation process. Now you are ready to connect to Windows Server. Simply highlight the connection from the connection name list and click on "Connect" button.

1.2 Defining Citrix ICA connection

Defining the Citrix ICA Client connection is similar to defining RDP connection.



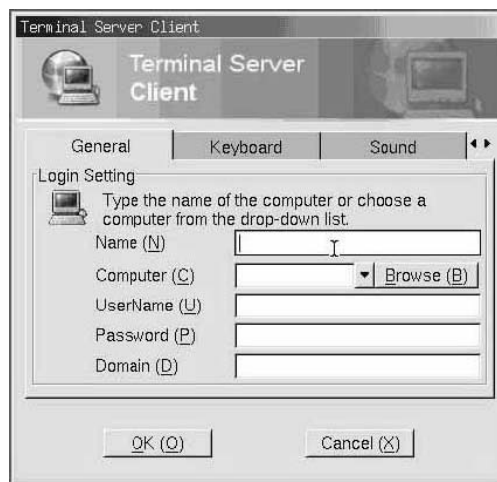
After you have click on the "Add" button, you will be asking with a pop-up dialog to select your connection type. Please select "Citrix ICA 6.3 client" to connect to a Windows Server.



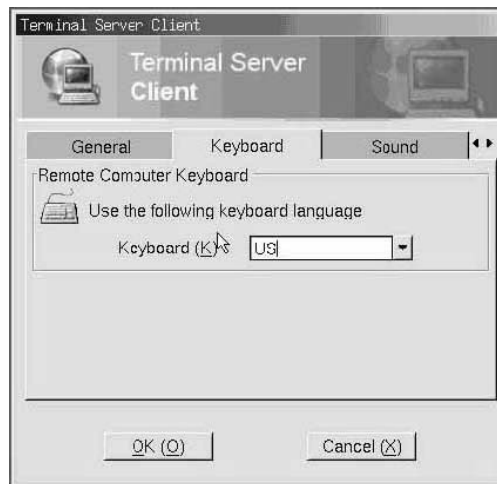
Select the ICA connection and a dialog box will pop-up as shown below.

1.2.1 General Setting 1.2.2 Keyboard Setting

Entry Item	Description
Name	Please enter a connection name for the RDP connection under the name entry box. Example: "Server1".
Computer	Type in the IP address of the windows server in the computer entry box it could be IP address or DNS name. You can also use the browse button to have automatically located your Windows Terminal Server within a network.
Username	You can type in your username here. This will eliminate keying username again during Windows login.
Password	You can type in your user password here. This will eliminate keying password during Windows login.
Domain	You can type in your network domain name here.

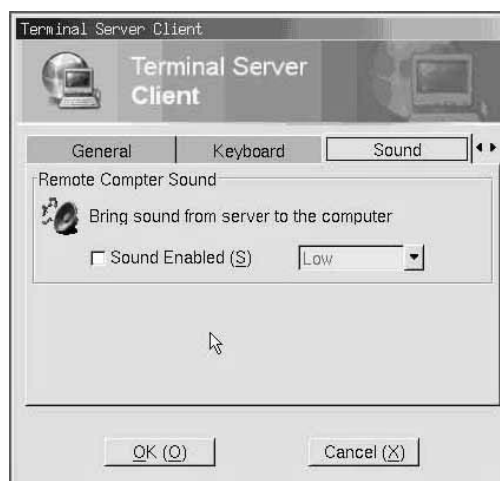


Once this is done you can proceed to the keyboard tab to select the appropriate keyboard for your connection



1.2.3 Sound Setting

Set sound feature for your Citrix connection

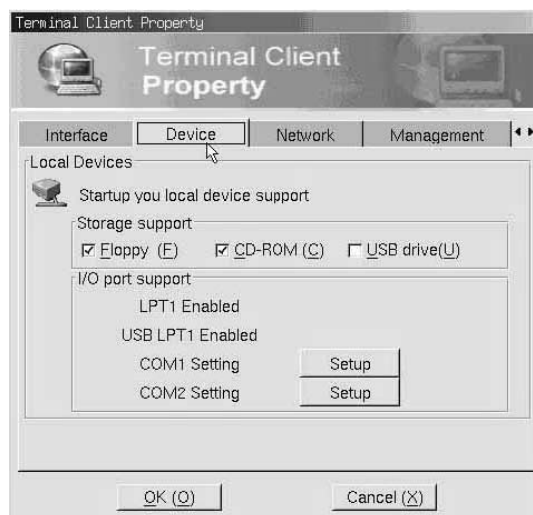


1.2.4 Local Resource Setting

Local storage is supported when connecting to a Citrix Server such as USB CD-ROM, Pen Driver devices. By default, it is disabling when setting up a ICA connection.



To setup this support, you must enable Storage support under the device tab in the Terminal property shown below.



Once this is enabled Citrix ICA connection will be able to select local storage support when connecting to Citrix server.

For local printer thru LPT or COM port, you must also enable it in the Terminal client property shown above for ICA connection to select it.

Enable each setting accordingly for your TC-200 to use local peripheral devices.

After you have specified your Citrix server and local device support. Each connection can also be defined to run a specific application from the server when connected.

This is especially helpful for POS or dedicated station where specific application is only needed to launch when the unit is turned on.

By default, this feature is disabled during ICA setting.



1.2.6 Experience Setting

You can also set some connection options and encryption feather for your Citrix ICA connection. By default, all options are enabled for best ICA connection experience.



Click "OK" to finish the ICA creation process. Now you are ready to connect to Citrix Server. Simply highlight the connection from the connection name list and click on "Connect" button.

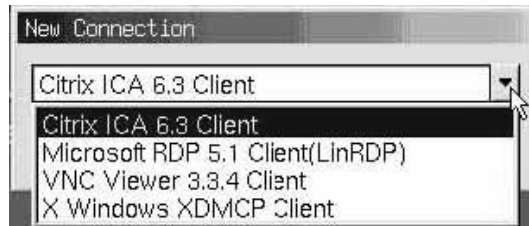
1.3 Connecting to Unix/Solaris/Linux Server

TC-200 has build in with XDMCP client. This means any TC-200 can connect to any Unix/Linux based server using XDMCP or X11 protocol.

Note: You must have a proper Linux/Unix server with XDM server running in order for TC-200 to successfully connect to it.

The process of creating a XDMCP connection is the same as RDP. Simply click on the add button located under the configuration tab and select XDMCP for the type of connection.

Select X Windows XDMCP client as the connection type as shown below.

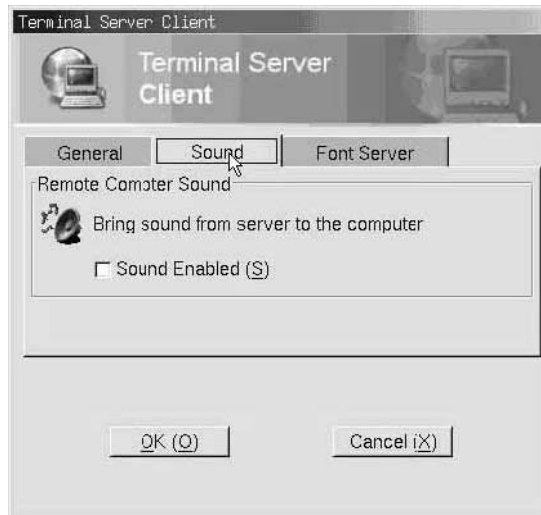


You will need to give a name to the connection you are creating in the entry shown below.



There are 3 type of XDM connection you can select- Broadcast, Query or Indirect, please make sure your Unix/Linux server are setup to allow such type of connection.

An optional sound enabled if your Unix/Linux servers have sound function An optional X-Font server is also available for your TC-200 to utilize fonts on an X font server within the network during a XDMCP connection.

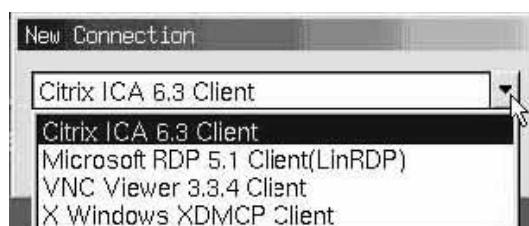


1.4 VNC Remote Management (VNC Viewer)

TC-200 has built in with VNC server and viewer. This means you can remotely control other clients using its build in VNC viewer.

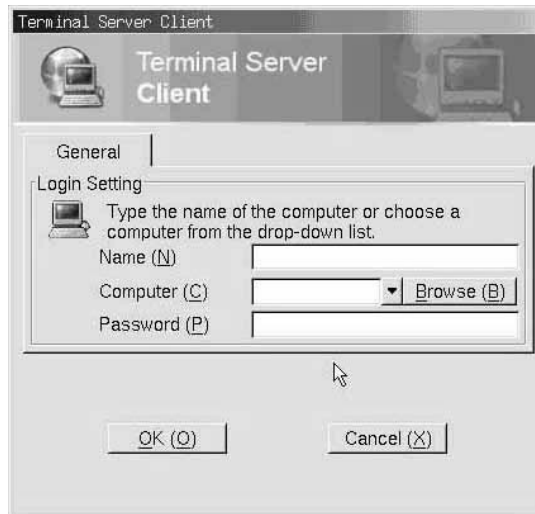
In order to control other TC-200 with VNC server you must create a VNC viewer connection as shown below. The procedure is the same as creating a RDP or XDMCP connection. Simply click the "Add" button under the configuration tab located on the connection manager.

Select VNC viewer as the connection type as shown below.



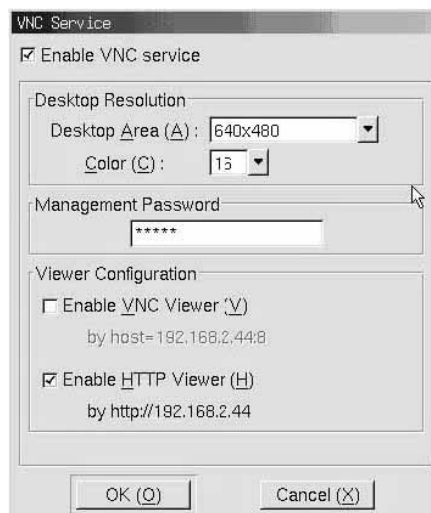
Type in the connection name in the entry box and the IP address of the VNC server unit For example: 192.168.1.1:8

Please make sure you type in the display number of the VNC you are connecting to. By default, TC-200 VNC display is set to 8. If you are connecting to VNC server other than TC-200, you might have to find out the display number first before connecting. If display number isn't specified, it will default to 0.



Example of VNC viewer connecting to TC-200, you can remote control all setup of TC-200.

Please remember to enable VNC service in TC-200 under "Terminal client property" in the "Control" tab in order for VNC viewer to access your TC-200. By default, the password for VNC service is set to "12345" in TC-200.



Remote management can also be done through a regular internet browser such as Internet Explorer. Simply type: http:// IP address of TC-200 and you can do a remote setup as same as a VNC viewer.

This function is extremely helpful for IT administrator to remotely maintain and setup your TC-200.

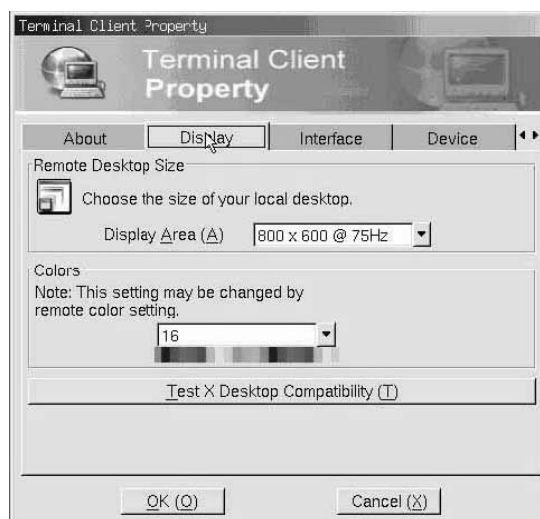
2. Terminal Client Property

Terminal Client property can be started by click on the “Start” menu or located at the top right corner of TC-200 desktop and selects Terminal Client Property as shown.

2.1 Display

You can setup your TC-200 display property under this tab. Your local display controls all your display size and colors depth when connecting to a Windows server through RDP or Citrix server through ICA. It is important that you setup your local display to support the colors depth and display you request from the server.

Under display Tab you will appear the form or setting the Desktop Area size and refresh frequency and also the Color depth. Set the resolution and refresh frequency according to the capabilities of your monitor.



Simply click on the down arrow located on the dialog box to select your colors depth. TC-200 allows you to set your desktop color from 8 bits- 256 colors up to 24 bits colors.

Once you have selected your chose of Display resolution size and Colors depth. We recommend that you do a compatibility test before proceeding to the next step.

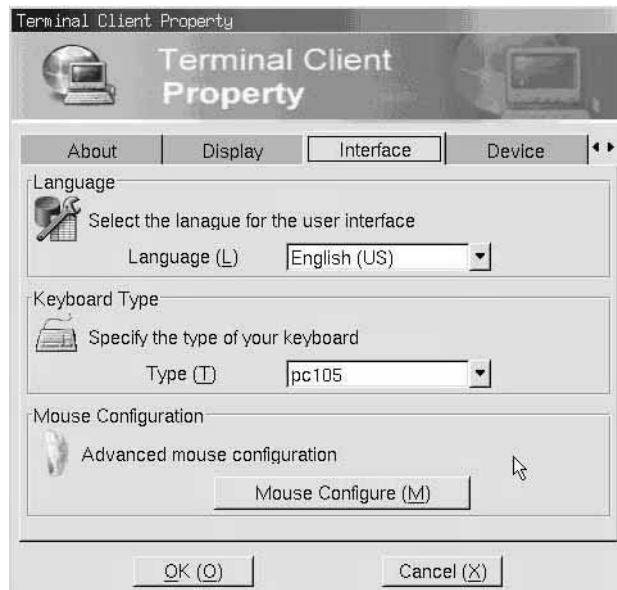
Mode test will pop up with a dialog box as follow with full screen “X” logo.

The “X” logo will appear for several seconds, if your monitor support the mode you have chose. In the event where you did not see any “X” logo after you proceed with the test, there might be a possibility that your monitor does not support the mode you have chosen. Please do not click on yes button if you do not see the X logo and return the display tab to chosen another display configuration until you can successfully see the X logo.

PS! In order to apply the display setting, you need to restart the terminal after the setting finished.

2.2 Interface

Under Interface tab, you will find setup settings for local language user interface, keyboard type and local mouse configuration.



Language

Simply click on the down arrow on the dialog box to select your local user Interface language. Once selected TC-200 user interface will switch to the selected language after a reboot.

Keyboard

Please also select the keyboard type you are using from the keyboard type dialog box accordingly. TC-200 supports various type of keyboard. Please make sure you select the correct keyboard for all keys to work properly.

Mouse

Mouse Configuration can also be setup under the interface tab. Button Configuration can be set to be right-handed or left-handed as shown. Pointer speed determines the speed of the mouse cursor when moving across the desktop. Press "OK" button to return the Interface tab after you have configured your mouse setup accordingly.

2.3 Device

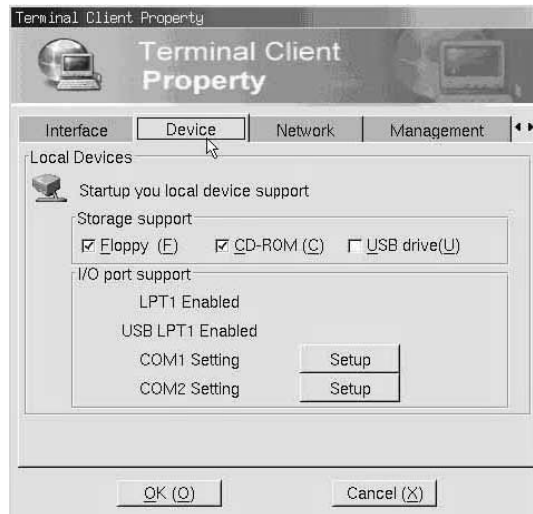
After you have correctly setup your display and interface, now you are ready to setup any external peripheral devices you have attached with your TC-200

TC-200 supports any your local USB storage device such as USB Flash Drive, USB CD-ROM or USB Floppy.

By enabling the option for USB drive storage support. It enables your TC-200 to use as your PC to use such devices locally when connected to a remote servers.

Note: local storage mapping must be enabled under Windows 2003 Server in order for this function to work. Local storage mapping does not work under Windows 2000/NT server.

For RDP connection you have to check the samba service is enabled (See 3.8 Control Tab), after that you can find your own local device with your hostname listed in the windows file explorer. Microsoft Windows 2003 server will automatically map your local drive to a vacant drive letter.



TC-200 not only can mapped peripheral storage device but also printer via LPT port.

Some special TC-200 can have a normal COM port for connection; In this case can click the "Setup" to setting the COM ports.

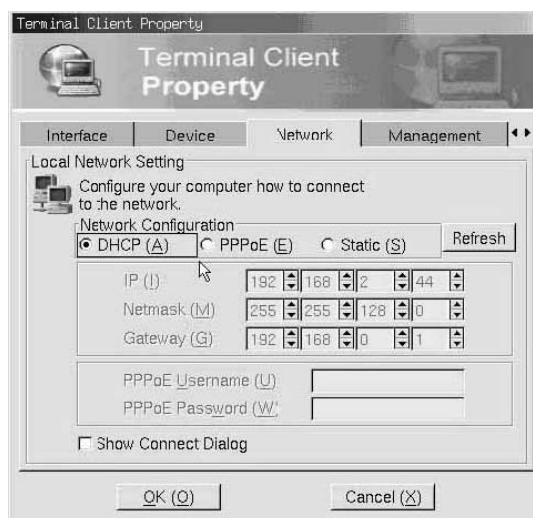
Note: Please make sure that Windows printer name support is enabled in the Windows 2003 Terminal service.

Enable LPT1 support by clicking inside the option box. Then select the corresponding printer driver by clicking on the "Add" button as shown above.

Select your printer model based on the manufacturer and printer device name.

2.4 Network

TC-200 supports 3 type of network connection-DHCP, PPPoE and Static as shown below. In order for TC-200 to connect to your server, a valid IP address is a must requirement.



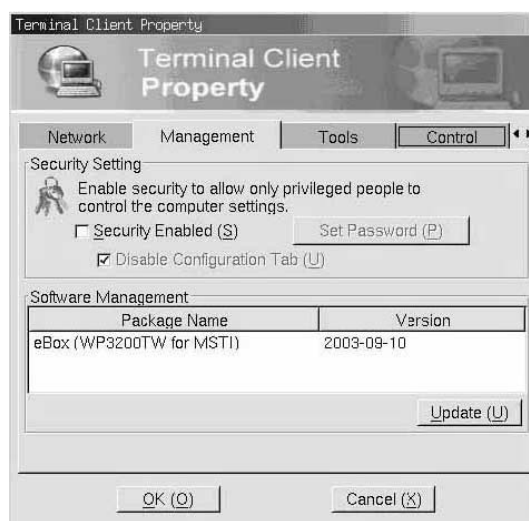
In any event of network change, you can simply click the “Refresh” button to update TC-200 latest network status.

Note: For PPPoE connection, please make sure you type in the username and PPPoE password Usually given by your ISP provider.

2.5 Management

Under the management tab, you will find that you will be able to set security for TC-200. This feature gives IT administrator another option for higher security on their Thin Client.

Once the security is enabled, all access to system settings, such as Terminal Client Property, Hardware Configuration and Connection Manager's Configuration, will require a password in order to gain access. By default, TC-200 security password is set to “12345”.



When security check is enabled, password will be required to do any changes to TC-200 setup. This prevents users from tampering the setup without authorization.

By default, password is set to “12345”. In addition, when security is enabled it will also disable the configuration tab in Connection Manager. This will prevent user from tampering with the connection setup.

Configuration can also be enabled if needed under security mode. This option can be disabled under the management tab.

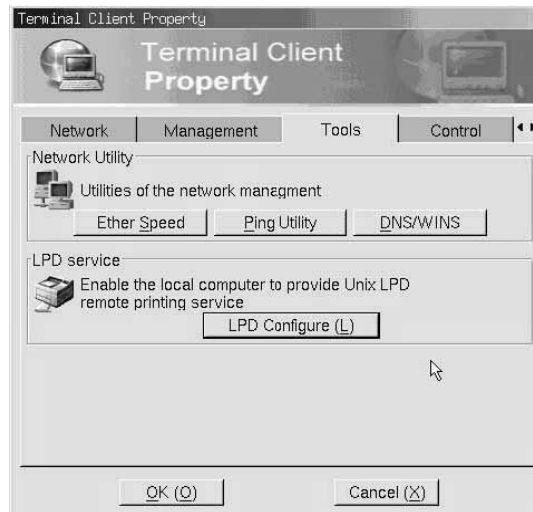
Software management can also be found under this tab. You can find the information on what package name and version date of your current software. Different package will determine what language support you have for your TC-200.

TC-200 is also designed with an update mechanism. In the event where new software update is released, update can be done thru FTP or HTTP.

Simply click on the “Update” button and to update the new software.

2.6 Tools

Under tool tab you will find some useful tools to help you setup or debug your networking environment.



Ether speed allows you to set your network to full/half duplex mode. By default, it is set to default for optimize compatibility with your network environment. Please be careful in setting this function as wrong setup might result in disconnect or poor network performance.

Note: It is known for some older Hub/Switch it requires network interface to be set to Half Duplex. This all depend on your networking environment and networking devices.

TC-200 also includes a Ping utility. This tool is extremely helpful for IT administrator to isolate networking problem, simply type in the IP address that you want to ping and TC-200 will display the ping result accordingly.

DNS/WINS setup can also be found under this tab. To setup TC-200 to recognized existing DNS or WINS within your network. Simply type in the IP address of the server within the entry box shown below.

Note: For WINS, currently TC-200 is a embedded Linux operating system at this moment there is no local application that will use the service of WINS.

In addition, TC-200 has a build-in LPD service enabled by default included in its operating system. This allows remote LPR printing directly to TC-200 from Windows 2000/2003 or Unix/Linux LPR service. By default, this feature is enabled and print queue name is set to LPT1.

2.7 Control

Under control tab, you will find miscellaneous applications and setup for TC-200.



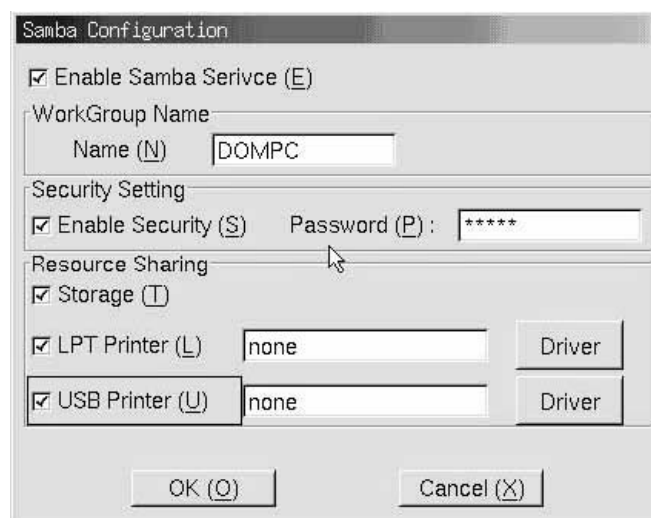
2.7.1 Volume Control

Volume control can be set under this tab. For local applications, sound can be set to low or high using this utility.

2.7.2 Samba

The Samba Service can allow you to find own local device such as with your hostname listed in the windows file explorer. .

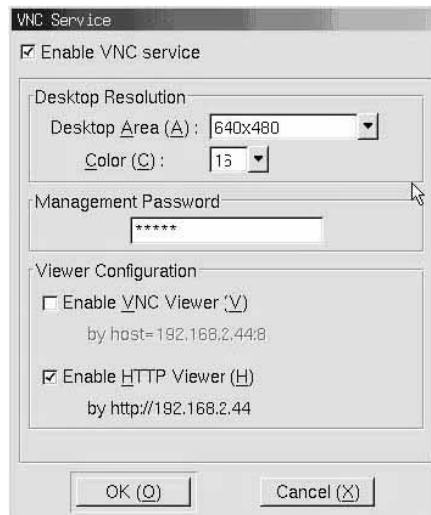
On the Basis of RDP does not support the Local Device mapping, Please check "Enable Security" and set the password to "12345" and after login to Windows 2003 server via RDP connection, run the "samba script" file in every login.



2.7.3 VNC service

TC-200 also supports VNC remote setting. By enabling VNC, you can access TC-200 desktop from any PC installed with VNCviewer or Internet explorer.

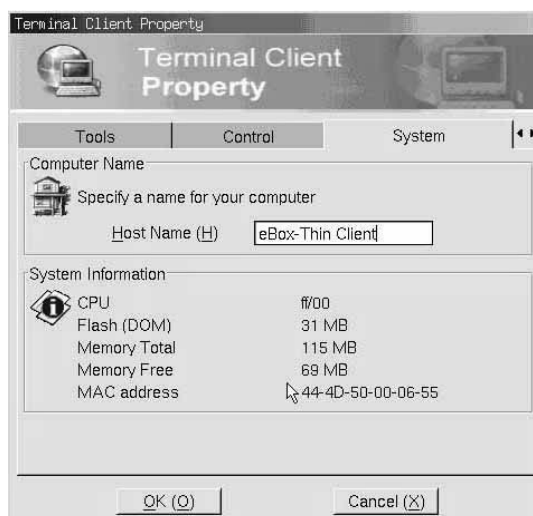
This extremely helpful for IT administrator where they can remotely configured TC-200s.



2.8 System

TC-200 system tab shows all your current TC-200 info under this tab. Info such as CPU type, Flash size, MAC address, Memory usage is displayed within this page.

Also, you can set your TC-200 name under this tab. By default, it is set with the name "RDPDOM".



Appendix: Setting up your local printer

TC-200 allows you to attach a local printer to its LPT or USB port. There are 2 methods to print from Windows Server/Unix Server to your TC-200 local printer.

Printing from Windows/Unix Server using RDP

For RDP client, you can directly map your local printer to Windows 2000 or 2003 server through the RDP protocol. This means all printing data are transfer using the RDP protocol. Note: To use this feature you must enabled Windows Printer Name printing in your Windows Terminal server. Simply enable the LPT1 support under the device tab in terminal client property in TC-200 as shown below.



Click on the “Add” button to fill out the printer model to the TC-200.

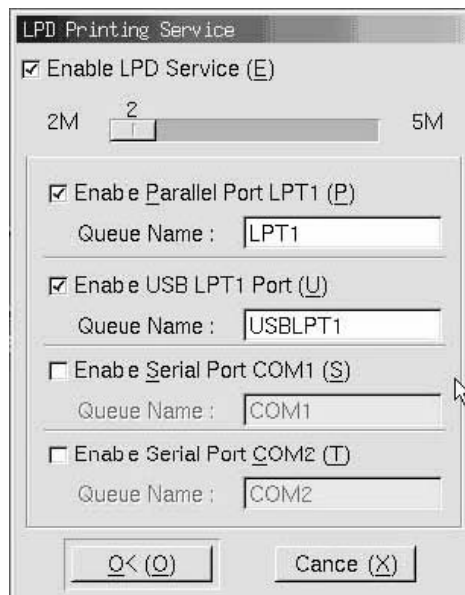
The name listed here are under the specification of Windows printer naming standard. This means the printer driver will be loaded based on the windows printer naming given to server when connecting. Once you have finish selecting the appropriate printer model. You are ready to connect to the server using RDP client software. Remember to enable local printer in RDP connection for the server to automatically create the printer for you.

Lastly, when connected to the Windows 2000/2003 server you should be able to find your mapped printer under the printer menu. Now, you are ready to print from the server to your local printer

Note: The client's printer mapped to the server is only viewed by the user; other user can not view and use the printer. After the user disconnects from the server, the printer is also disappear.

Printing from Windows/Unix Server using LPR

Another method of printing to TC-200 attached printer is through LPR. By default, TC-200 is enabled with LPD service with a default print queue name LPT1 shown below



From Windows 2000/2003 server you can create a Standard TCP/IP printer using LPR to print directly to TC-200 LPD service given TC-200 IP address and print queue name. You will be request to install the printer driver on the Windows Server during the creation of the printer.

From Unix Server, you can directly print using the LPR command in UNIX directly to TC-200 given the IP addressand print queue name.

Note: The printer created by this method can be viewed by all users and no matter the user on the client loginsor not, all the other people can print data to this client's computer.