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7. Attached hereto as Exhibit B are true and accurate copies of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each file.

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Mina Ching

EXHIBIT A

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Bringing TV and broadcast data to your PC

Product selector
Find your desired product from our extensive product line.

Data sheets and specifications of WinTV, ImpactVCB and our Video Wizard products

Information on technologies used in Hauppauge products including Digital TV, E-Commerce and more!

Product Support and Software Updates
Product Support and Software Updates (the latest applications and drivers, technical notes plus beta test versions)

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The **WinTV-PVR-usb2** is our newest (and some say best) personal video recorder. It records your TV shows and home videos to disk over USB, and includes ULead DVD MovieFactory 2.1 for making DVDs from your video recordings. In the U.S., it's available exclusively through Circuit City stores.

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Visit our Web store for Hauppauge accessories and upgrades

See what some WinTV users are doing with WinTV's: click here

Please note the new area code our U.S. sales office and tech support departments:
Sales telephone number: 631-434-1600
Tech support telephone number: 631-434-3197

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Product Support and Software Updates

Click here for the Product Support site
(maintained by Hauppauge's technical support department)

See below for a list of software updates for Hauppauge Products

WinTV-PCI boards including the WinTV-GO, Theater, and DBX Product selector for software updates and utilites	**WinTV-USB** Software updates and utilities Frequently asked questions QuickInstall manual (PDF) WinTV-USB manual v4.8(PDF)	**WinTV-HD** High Definition TV receiver software updates QuickInstall manual (PDF)
WinTV-PVR Products Software Updates product selector WinTV-PVR Manual in PDF form		
WinTV-CinemaPro software updates	**WinTV-D** Installation software for Windows 98, NT, ME, 2000 and XP	**VTPlus** **Teletext Software**

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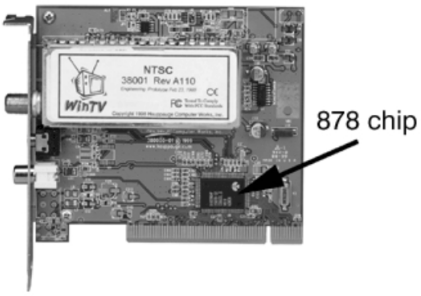
81 capture 23 Dec 2002
JUN AUG FEB 01 2002 2003 2004 About this capture

WinTV PCI boards
Software Update product selector page

Note: It is important that you chose the right WinTV pci board before you download and install a driver update.

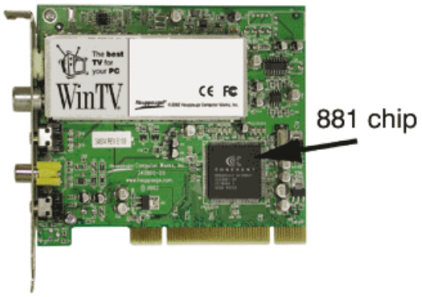
Chose your WinTV PCI board, and you will be taken to the page which has software updates. Click here to download ProdInfo. When you run ProdInfo, the first line will tell you which WinTV pci Model number you have.



WinTV 878 or 848 based PCI boards or Impact VCB's
Software updates and utilities page
Frequently asked questions
Installation manual (PDF)

878 based boards have the following Model numbers:
61xxx
44xxx
39xxx
38xxx
37xxx

848 based boards have the following Model numbers:
56XXX
58XXX
60XXX



WinTV 881 based PCI boards
Software updates and utilities page
QuickInstall manual (PDF)

881 based boards have the following Model numbers:
34xxx

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WinTV®

Installation and Reference Manual

Hauppauge!®

WinTV®

Installation and Reference Manual

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Internet addresses:

Sales: sales@hauppauge.com
Technical Support: techsupport@hauppauge.com

Web site:
http://www.hauppauge.com

FCC Statement

Radio Interference Statement:

The WinTV boards have been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna.
- increase the separation between the equipment and receiver.
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- consult the dealer or an experienced radio/TV technician for help.

FCC ID: H90WINCAST MADE IN USA

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance to the FCC Rules could void the user's authority to operate the equipment.

CE Statement:

This equipment has been tested and complies with EN 55013, EN 55020 and IEC 801-3 part 3 standards.

CE

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Introduction

This manual is covers all of the **WinTV** models based on the "PCI Push" technology for displaying TV on your PC's VGA screen. It covers, but is not limited to, the following models:

WinTV

WinTV-dbx

WinTV-radio

WinTV-pci

WinTV-primio

WinTV-radio

WinTV-Theater

References to the **WinTV** apply to all models. The Windows95/98 driver for all of the WinTV boards will be referred to as the **WinTV driver**, and the installation CD-ROM will be referred to as the **WinTV Installation CD-ROM.**

For models which have particular features (such as the chapter on the Radio application), we will note which models these features are available on.

For a description of how the WinTV boards display video on your VGA screen, see the chapter entitled **How WinTV Works.**

Installing the WinTV boards

The **WinTV** boards are Plug-and-Play devices designed for Windows95, 98 and NT 4.0. Plug-and-Play simplifies the installation and hardware setup of WinTV by having hardware settings assigned by Windows, instead of needing to set jumpers. This chapter describes how to install these boards and how the automated Plug-and-Play installation procedure works .

Installation overview

To install **WinTV** under Windows 95 or 98, you will follow these steps:

✓ Install the **WinTV board** in your PC

✓ After booting Windows 95 or 98, you will install **WinTV's** Windows device driver from the **WinTV Installation CD-ROM**

✓ After the Windows driver is installed, you will then install the WinTV application software from the **WinTV Installation CD-ROM**

✓ Finally, if necessary, an updated Windows Direct Draw Driver can be installed from the **WinTV Installation CD-ROM**

WinTV board diagram

The following diagram shows the main functions and connectors of the **WinTV** board. Since there are several different models with different features and functions, your board may not have all of the components installed.

Board connections

FM:	FM radio antenna connection (on some models)
TV:	TV antenna or cable TV connection
Audio LineOut:	Audio output 1/8" minijack (connects to sound card LineIn jack)
Video In:	VideoInput jack (S-Video on some models)
Audio Line In:	Audio input 1/8' minijack J2, left and right channel
Remote Control:	Minijack J3 (optional on some models)

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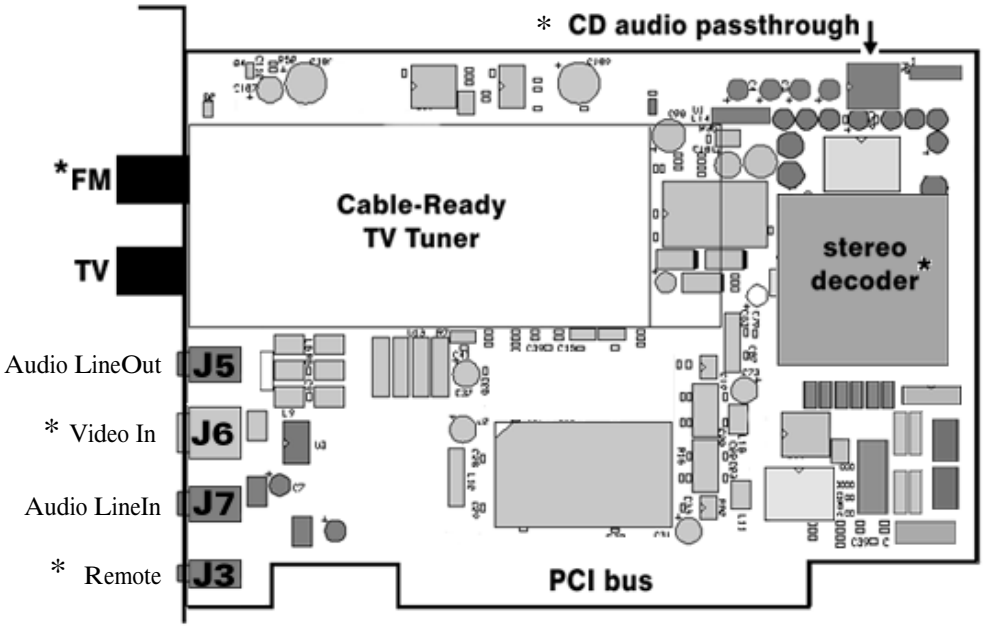
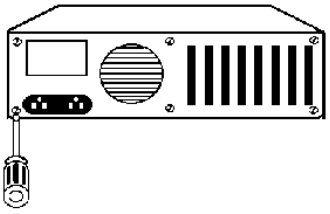


*Note: not available on all models.
Note: this outline may not reflect the current revision of your WinTV board. For the most up to date information, see the WinTV QuickInstall Guide provided with your WinTV board.

Installing the WinTV board in your PC

Before installing the **WinTV** board, turn off the power to your PC and remove the cover. Since the **WinTV** board is sensitive to static electricity, we recommend that before you remove it from its protective anti-static bag, you touch the chassis with your hand to discharge any static electricity.



Once the cover is removed, plug the **WinTV** board into any free PCI slot.

Note: *The WinTV board cannot be plugged into a 16-bit slot!*

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Note: *The WinTV board must be plugged into a PCI bus master slot. Most PC's allow any PCI slot to be a bus master, though sometimes we find that a PCI slot is not a bus master slot. If so, you can either move the WinTV to another PCI slot, or from the system BIOS you might be able to enable a PCI slot for bus-mastering.*

Now connect the **Audio Cable** between the **WinTV** board and your **PC**'s sound card. **P**lug one end of the audio cable into the **Audio LineOut jack** of the **WinTV**. The other end (a 1/8" audio jack) then plugs into the **LineIn jack** of your sound card.

Note: *Most sound cards have three round jacks on the outside of the PC. They are: Microphone Input, Audio Output and Line Input. The Audio Output would go to your speakers, while the Microphone input might go to a microphone (if you are using one). The LineIn jack is normally indicated on the sound card by the words IN or LineIn stamped into the metal bracket on the outside of your PC. This is where you would plug your WinTV Audio cable.*

Installing the WinTV driver under Windows98

When re-starting Windows for the first time after the WinTV board has been installed, the **Add New Hardware Wizard** will appear.

Click **NEXT**.

Select **Search for the best driver for your device (Recommended)**.

Click **NEXT**.

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When you see this dialog box, insert the **WinTV Windows Installation CD-ROM** into your CD-ROM drive.

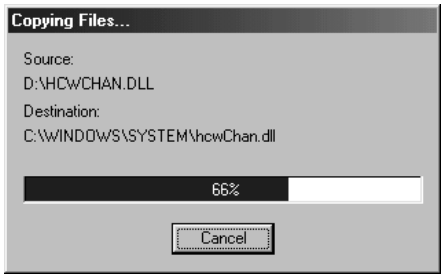
Select **CD-ROM drive** and click **NEXT**.

Once the Hauppauge WinTV video driver has been detected, click **NEXT**.

Note: *Note: If a message stating "*Windows was unable to locate a driver for this device"*, you did not wait long enough for the WinTV* Installation CD-ROM *to be read. Click* Back *and then click* Next *again for the CD to be recognized.*

You will see a number of files being copied to your hard disk drive.

If you receive an error message saying a file cannot be found, browse to the Win98 directory on the WinTV Windows Installation CD-ROM for these files.



Click **FINISH**.

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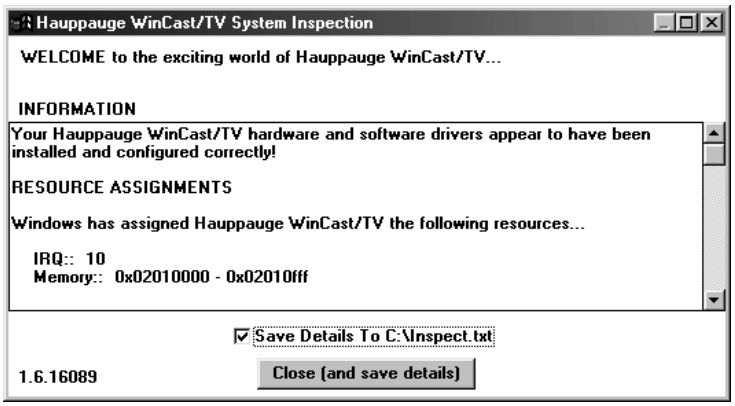
After the Hauppauge WinTV video driver has been installed, the **Hauppauge WinTV Audio Driver will be automatically installed.**

After all files are copied, the **Hauppauge WinTV System Inspection** utility will be run.

Check for the message **Your Hauppauge WinTV hardware and software drivers appear to have been installed and configured correctly**. If not, refer to the Troubleshooting section.



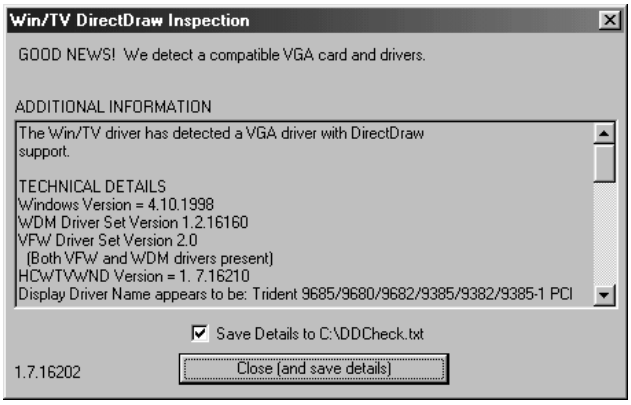
Click on **Close (and save details)**.

Now the **Hauppauge WinTV DirectDraw Inspection** utility will be run.

Check if the message **GOOD NEWS! We detect a compatible VGA card and drivers** appears.

Click on **Close (and save details)**.

If you do not see this message, you might need a Direct Draw driver update. See **Chapter 2: Using DirectX setup to install an updated Direct Draw VGA Driver**.



After the DirectDraw check completes, **WinTV Setup** will be run.

To use the remote control (optional on some WinTV models) make sure **Install the Hauppauge Remote Control Application** is checked.

Click **Install** to install the WinTV32, WinTV-Snapshot and WinTV radio

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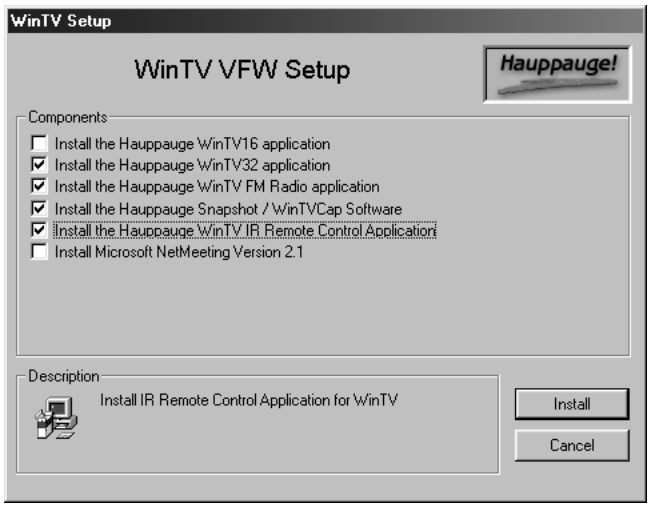
applications.

After the Setup program is complete, you will see a WinTV32 icon on your Windows desktop. To run the WinTV32 application, double click on the WinTV32 icon.

On those WinTV models equipped with remote control, after rebooting your PC the Remote Control will be enabled.



Installing the WinTV driver under Windows95 OSR2

Windows 95 OSR2 is a version of Windows95 which is found on many new PC's. OSR2 looks slightly different during the installation of the **WinTV driver** then the upgrade version of Windows 95.

After installing the **WinTV** board in your PC, and turning on the power, Windows 95 Plug-and-Play **Update Device Driver Wizard** will recognize that a new **PCI Multimedia Video Device** has been seen.

If you do not see the **Update Device Driver Wizard**, then please refer to the section entitled **Installing the WinTV driver under the upgrade version of Windows 95**, on page 1-7.

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Now, insert the **WinTV Installation CD-ROM**. Wait a few seconds for the CD-ROM to be read, then click **Next**. The next window will appear automatically after Windows 95 has determined that this device is the **Hauppauge WinTV**.

Note: *Note: If a message stating "*Windows was unable to locate a driver for this device"*, you did not wait long enough for the WinTV* Installation CD-ROM *to be read. Click* Back *and then click* Next *again for the CD to be recognized.*

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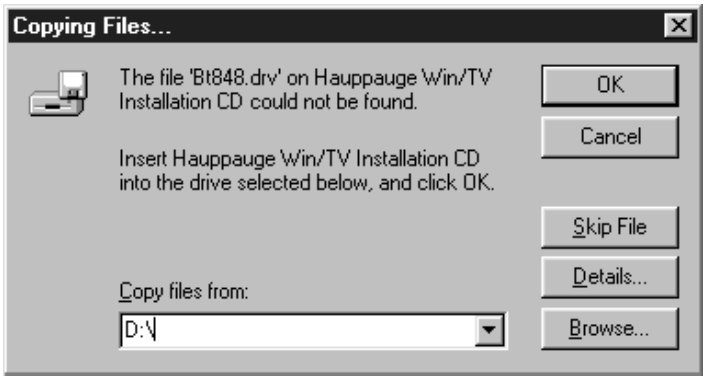
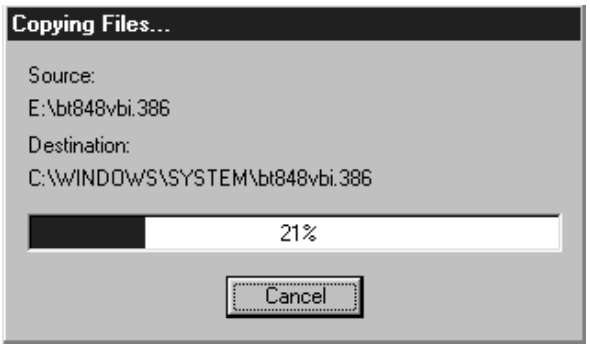
Click on **Finish**.

After a few seconds you might be asked to "**Please insert the disk labeled WinTV Installation CD**".

If so, click **OK**. Then type in the drive letter of **CD-ROM** drive. For example, if your **CD-ROM** is **D:**, type:



The driver starts to install. You will now see the progress as Windows 95 installs the rest of the **WinTV driver**.



After the **WinTV** drivers have been installed, a **System Inspection** program is automatically run which will check your hardware configuration, alerting you to possible hardware conflicts. To see a screen shot of this window, wee page 1-5.

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After checking for hardware conflicts, a **Direct Draw Inspection** program is automatically run which will check to make sure your VGA card has a Direct Draw driver which is compatible with **WinTV. See page 1-5 to see a screen shot of this window.**

If you get an error message refer to **Chapter 2: Using DirectX to install an updated DirectDraw driver** for information on updating the Direct Draw driver for your VGA card.

Now you can install the application software from the **WinTV Installation CD-ROM**. Click the **Start** button, then **Run**. Type your CD-ROM driver letter, then SETUP.

You can install the WinTV application, plus any other bundled application which uses the WinTV.

Installing the WinTV driver under the upgrade version of Windows 95

After installing the WinTV board in your PC, turn on your PC. After booting, Windows95 will detect the presence of the WinTV board and will display the message *New Hardware Found*:

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Note: *Note: If you see this message, your PC has the upgrade version of Windows95. Otherwise, see the previous section (*Installing the WinTV driver under Windows95 OSR2*) which describes the WinTV driver installation under the version of Windows 95 which is found on new PC's.*

Click **OK**. You will then be asked to **Install from Disk**. Put the **WinTV Installation CD-ROM** in your CD-ROM drive, type the drive letter of your CD-ROM and click **OK**. **Note**: It can take as long as a minute for the **WinTV Installation CD-ROM** to be recognized by Windows.

If you do not know what drive letter your CD-ROM is, click on **Browse** and look for the CD-ROM icon.

You will then be asked to select device. Select **Hauppauge WinTV**.

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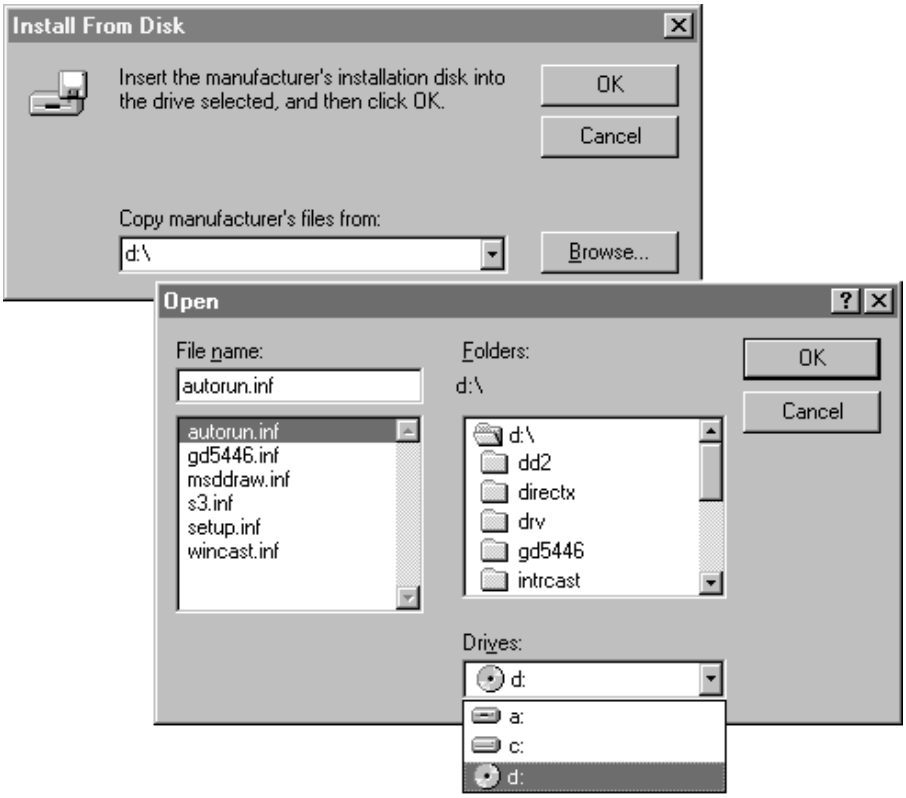

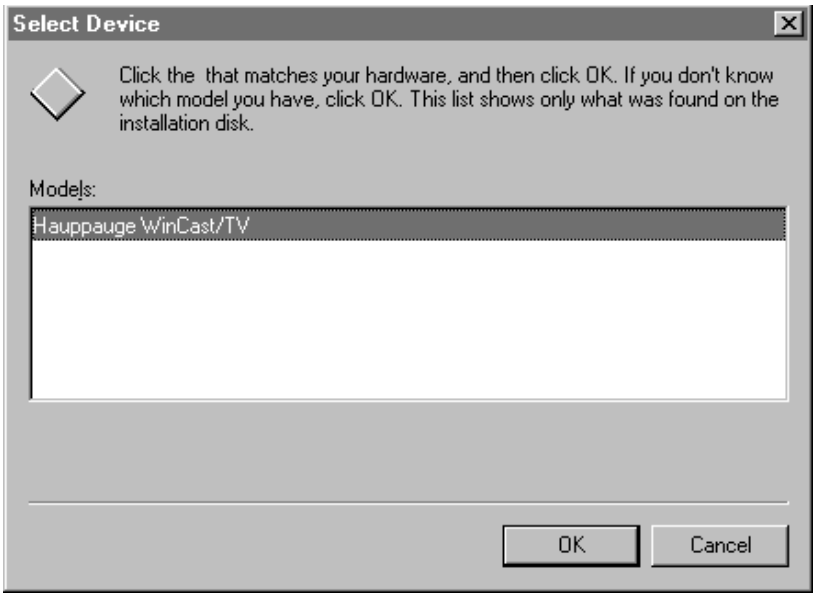

Click on **OK** and Windows95 will load the **WinTV driver**.

After the **WinTV driver** has been loaded, a **System Inspection** program is automatically run which will check your hardware configuration, alerting you to possible hardware conflicts. To see a screen shot of this, see page 1-5.

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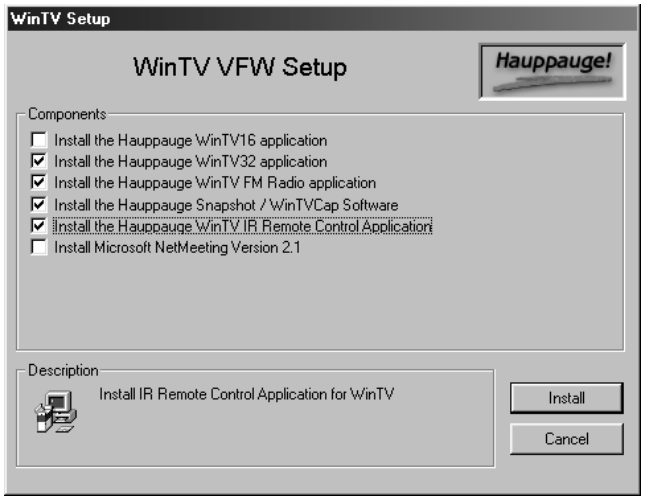
After checking for hardware conflicts, a **Direct Draw Inspection** program is automatically run which will check to make sure your VGA card has a Direct Draw driver which is compatible with **WinTV**.

If you get an error message refer to **Chapter 2: Using DirectX to install an updated DirectDraw driver** for information on updating the Direct Draw driver for your VGA card. Note: The VGA color setting should be at least 16 bits per pixel.

Now you can install the application software from the **WinTV Installation CD-ROM**. Click the **Start** button, then **Run**. Type your CD-ROM driver letter, then **SETUP** to install the **TV and Image Capture** application, and the **WinTV-Capture** application.



Primary Surface mode

It is sometimes useful to force **WinTV** to use a mode of operation of your VGA card known as **Primary Surface mode**. This can be helpful in eliminating VGA compatibility problems, or improving picture quality on some VGA boards when used in some resolutions.

To force **WinTV** to use Primary Surface mode, run the program "PRIMARY", which is installed with the WinTV application. Click **Start/ Programs** and then **WinTV**. Double click on **Primary**. Click on **Force Primary** then close the program by clicking on the X. The Primary program simply makes a setting in the Windows Registry that tells the **WinTV** application to use the Primary mode of operation.

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This can be changed at any time to "Allow Overlay" by re-running Primary and clicking Allow Overlay.

Note: *When using Primary Surface mode, you will not be able to view live Closed Caption data overlaid on your TV Window when using the Intel Intercast Viewer. However, you will still be able to save the Closed Caption data to a file for later reading.*

Connecting the WinTV board to a VCR, Video Camera or Camcorder

Most VCR's or camcorders have a female RCA jack labeled "Video Out". Most also have a jack labeled "Audio Out". Most video cameras simply have one output connection labeled "Video Out".

To connect the video to the WinTV board, use shielded video cables (not supplied) with male RCA connectors on both ends:

- connect from the **"Video Out" jack** on your video camera, VCR or camcorder to the **Composite Video input jack** on the WinTV board.

  Note: Some WinTV models have a yellow RCA jack on the back panel bracket. Others have a high-quality S-Video input jack, which requires a supplied **S-Video to Composite video adapter** to connect to your camcorder.

To connect the audio from your VCR or camcorder to the WinTV, use a 1/8" stereo minijack extension cable (1/8" male minijacks on each end) and:

- connect the "Audio Output" 1/8" minijack on the VCR or camcorder to the **Audio LineIn jack** on the WinTV board.

  Note: Some camcorders use RCA connectors instead of 1/8" minijacks to connect the audio. If so, you will need an female RCA to 1/8" minijack adapter. These adapters can be found at most Radio Shack stores.

Connecting the WinTV board to a Sound Card

The WinTV board's audio output should be connected to a sound card using the supplied **Audio Cable**:

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- plug one end of the **Audio Cable** into the jack marked **LineOut** (**Audio Line Out jack J4**) on the back panel bracket of the **WinTV** board
- plug the other end of the **Audio Cable** into your soundcard's **LineIn** jack.

Note: *Most sound cards have three round jacks on the outside of the PC. They are: Microphone Input, Audio Output and Line Input. The Audio Output would go to your speakers, while the Microphone input might go to a microphone (if you are using one). The LineIn jack is normally indicated on the sound card by the words IN or LineIn stamped into the metal bracket on the outside of your PC. This is where you would plug your* WinTV *Audio Cable.*

Adjusting the Audio Volume

Once the audio cable is connected to your Sound Card, the WinTV application can change the audio volume coming from the **WinTV** board by adjusting the **LineInput** sound volume of the **VolumeControl** program in Windows.

The **VolumeControl** program is normally installed with Windows or by the sound card installation program, and allows the control of volume from the various sound sources. If you cannot hear sound when running the **WinTV** application, you might need to check the volume level of **LineInput** in **VolumeControl**.

The VolumeControl application is started by clicking either:

Programs/Accessories/Multimedia/VolumeControl

or

Start/Programs/Accessories/Entertainment/VolumeControl

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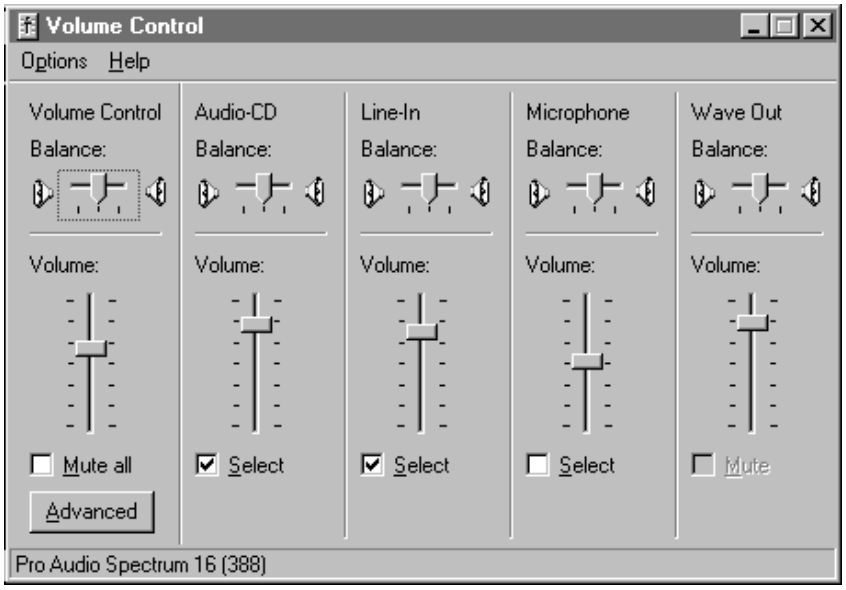

If LineIn is muted, unmute it to hear audio from the WinTV.

You should see Line-In balance as one of the selections. If not, then click on **Options/Properties** and under **Show the following volume controls** check **Line-In**. Then click **OK**.

You should now see a selection for **Line-In**. Make sure the **Select box** is checked, then raise the volume to about 1/2 of the way to the top. This should be a good starting point for the volume control.

In the WinTV application under the **Configure/Audio** menu, the Mixer ID should be set at **Line-In**.

As you adjust the audio volume in the WinTV application, you should see the slide bar in the VolumeControl window rise and fall.

Checking the WinTV Plug-and-Play Setup

After the **WinTV** board has been installed, you can find out what memory range and interrupt have been assigned by Windows Plug-and-Play by looking at the configuration in the **Control Panel**. Plug-and-Play will not let you change the Interrupt it has assigned, but you can, if necessary, change the Memory Address chosen by Windows.

Open up **Control Panel** by clicking on **Start/Settings/ControlPanel**. Now open up the **System** properties setup by double clicking on its icon, then click on

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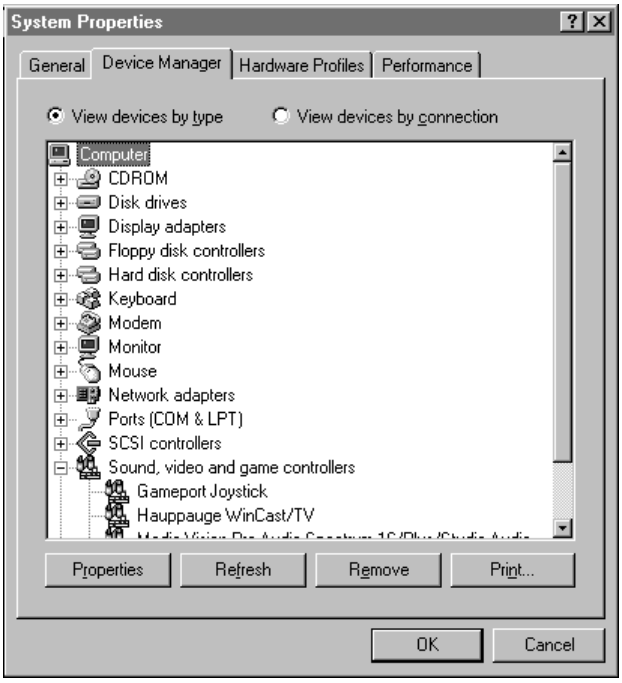
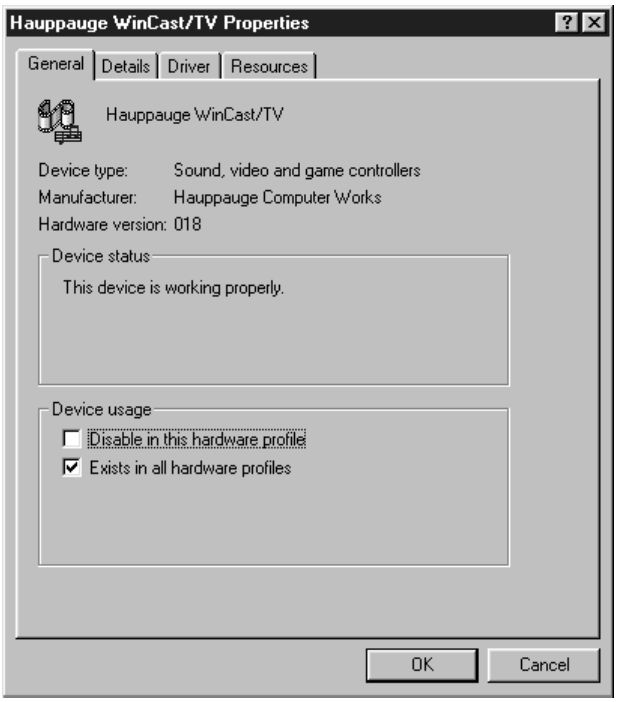
the **Device Manager** folder:



Then select **Sound, video and game controllers**, then click on **Hauppauge WinTV** and then **Properties**:



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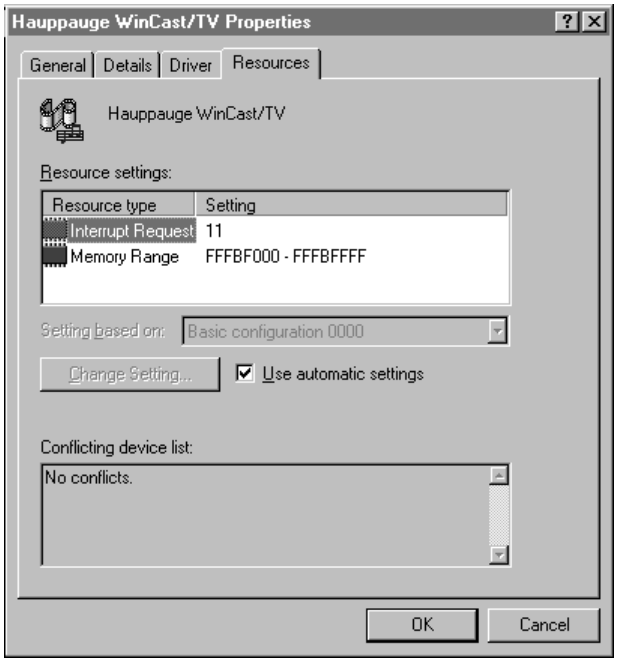
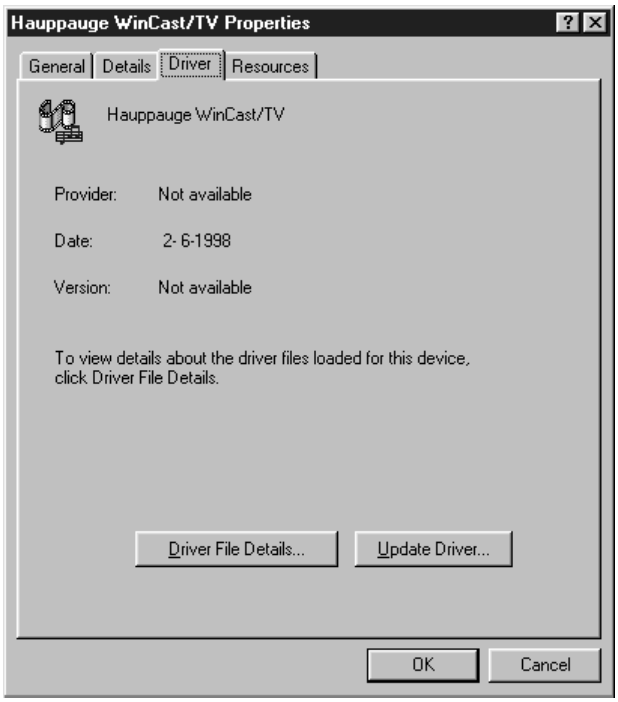
Click on **Resources** to see which resources Windows95 has assigned to the **WinTV**. Remember: the Interrupt setting cannot be changed (since it is assigned by Windows 95 Plug-and-Play) but the Memory Address can.



To see which versions of drivers are being used, click on **Drivers**:



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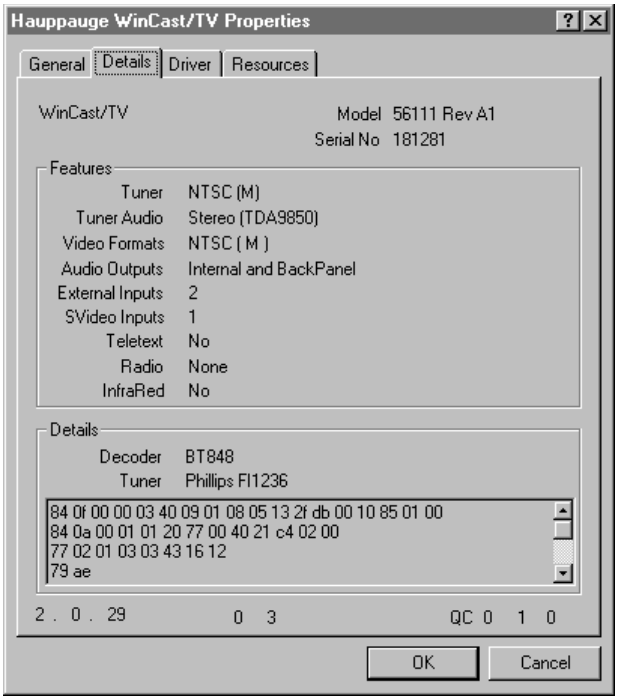
Click the **Details** tab to see the configuration of the **WinTV driver**



This window will show the type of **TV** tuner, the serial number and revision of your **WinTV** board.

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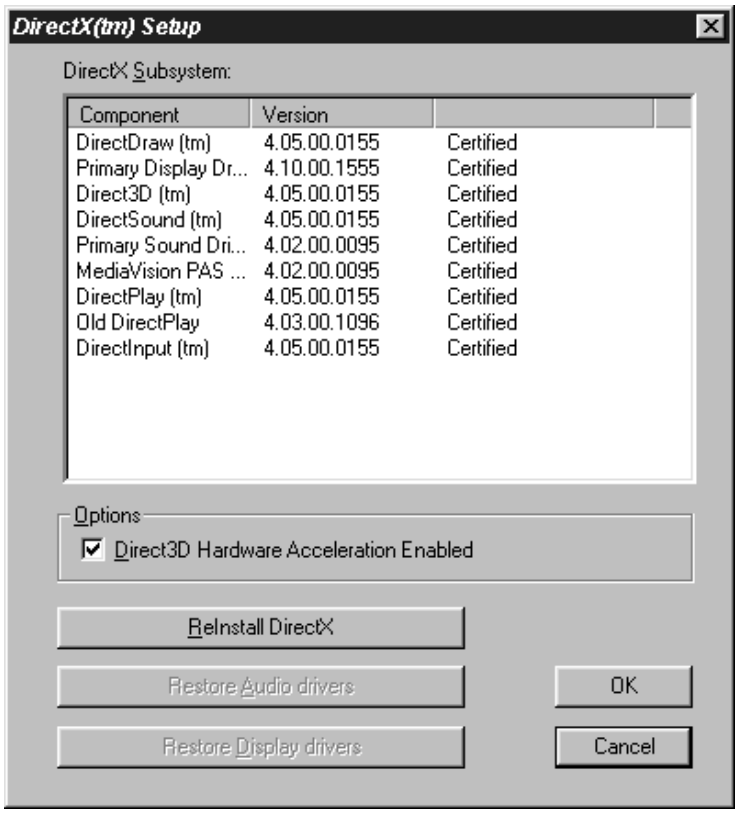
Using DirectX setup to install an updated Direct Draw VGA Driver

To install an updated DirectDraw driver

An updated version of DirectX is installed automatically for Windows95 users. If you would like to re-install DirectX for your VGA card, or if you did not get a "Good News" message after the **WinTV DirectDraw Inspection** was run, follow this procedure.

DirectDraw drivers for your PC's VGA card is installed as part of the DirectX setup. DirectX is provided on the **WinTV Installation CD-ROM** in the DIRECTX directory.

To install DirectX, look in the DIRECTX directory on the **WinTV Installation CD-ROM** rand double click on DXSETUP. You will then see the following menu:



Click **OK**.

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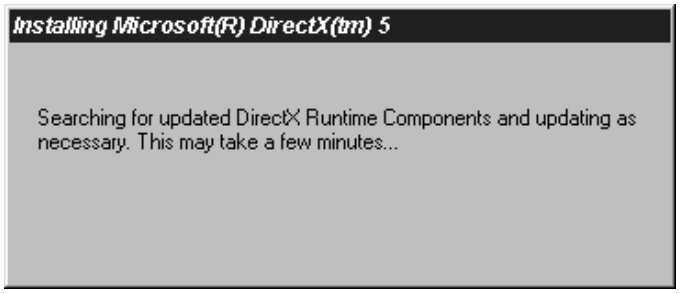

The DirectX setup will spend several minutes looking for drivers in your system which can be updated. As it finds drivers, you will see messages such as:

Click on **OK**.

After DirectX has updated all drivers, it will ask you to restart your PC. Do so.

After rebooting, you can check to see if your VGA card driver has been updated by running the DDCHECK program. Click the Start button, then Run then type DDCHECK. Look for the “Good News” message.

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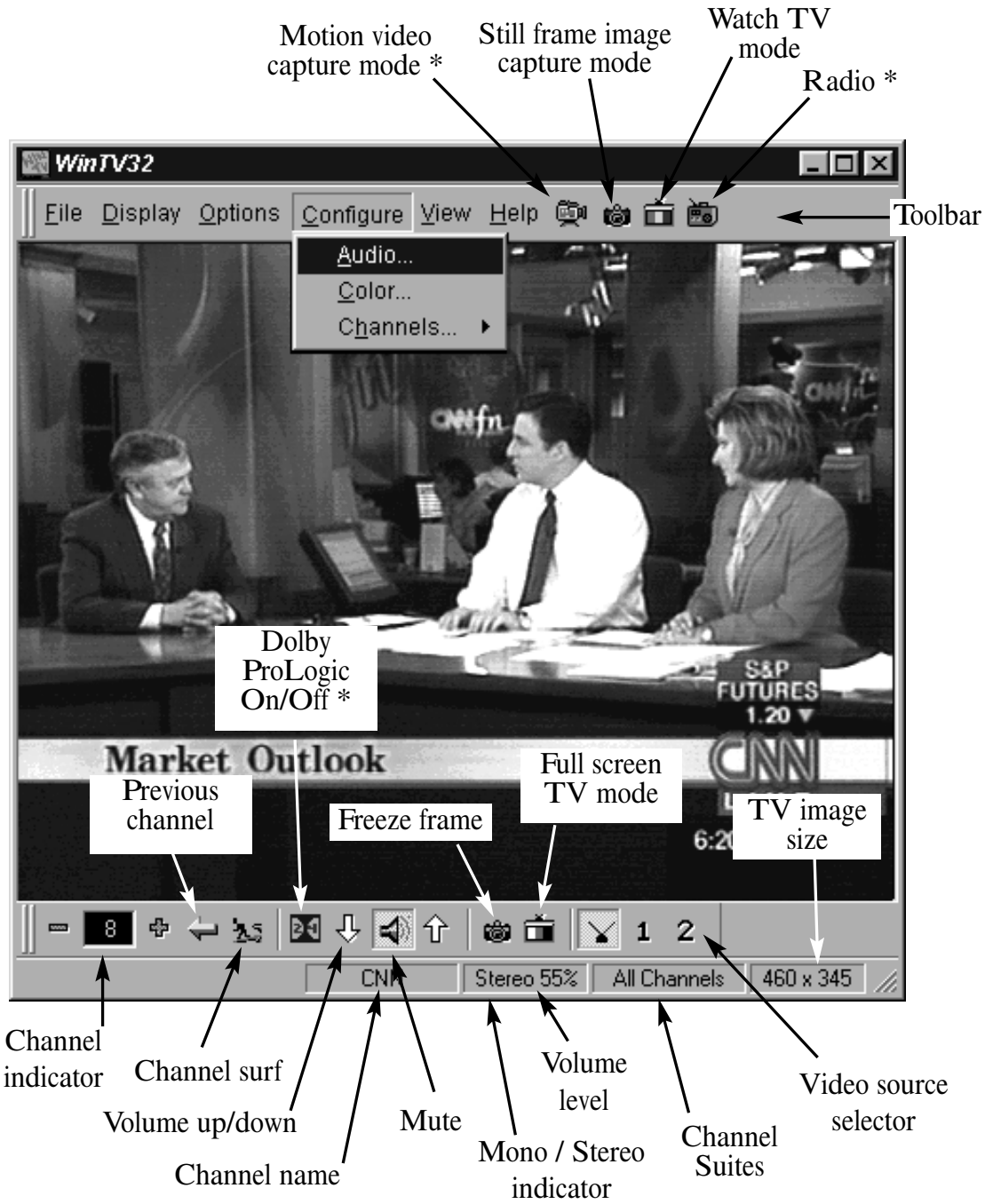
The WinTV32 Application



* on some model WinTV's

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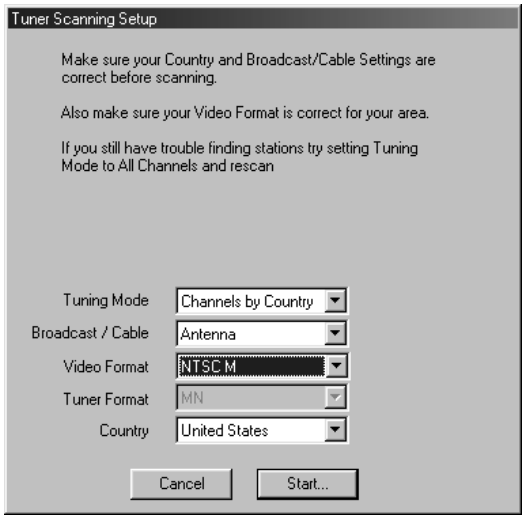
Running the WinTV application

After installing the WinTV application from the WinTV Installation CD-ROM, you will see WinTV icons on your Windows background. Start **WinTV32** by double clicking on its icon.

You can also click on **Start/Programs/WinTV** and then the **WinTV32** icon to start WinTV.

The first time you run WinTV, you will be asked to scan for TV channels. Click **OK**.



If you are using a cable TV connection, in the **Broadcast/Cable** menu item, select **Cable**.

In **Video Format**, in North America choose **NTSC M**. In **South America**, choose **PAL M** or **PAL N**.

After the scan is complete, you will have a list of TV channels which are active in your area.

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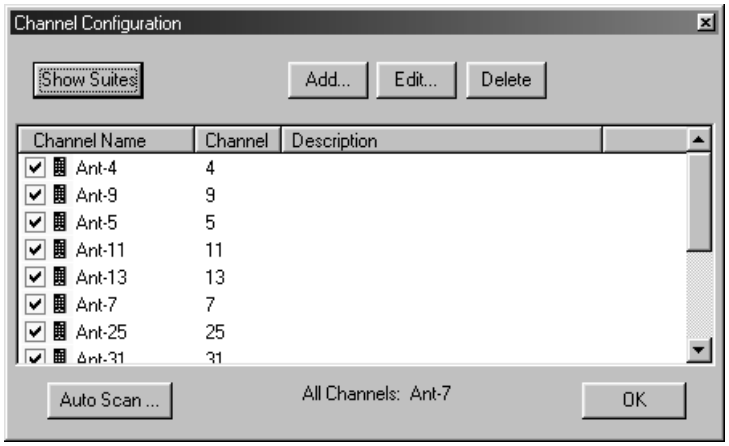

You can modify the channel names by single clicking on the channel, then clicking **Edit**. Change the **channel name** to the name that you would like to have displayed in the WinTV32 toolbar.

Still Frame Image Capture mode

You can switch the WinTV32 application into the high quality image capture mode by clicking on the **Still Frame Image Capture Mode** button on the toolbar. When you click on this button, you will see the **Image Capture Toolbar**.

Click on the **Configure** icon in the **Image Capture Toolbar** to set the image capture configuration.

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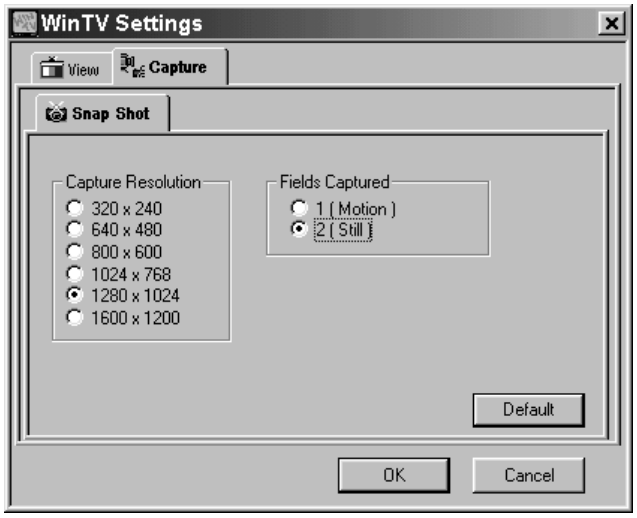

You can capture images up to 1600x1200 pixels.

To reduce the effects of motion in the video image, but with lower image resolution, in the **Fields Captured** option choose **1 (Motion)**.

Motion Video Capture mode

You can switch the WinTV32 application into the motion video capture mode by clicking on the **Motion Video Capture Mode** button on the toolbar (see page 3-1 for its location).

Motion Video Capture Toolbar

To setup for motion image capture, click the **422YUV** button:

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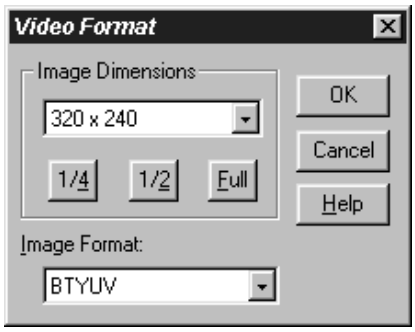

For best performance when capturing, set the **Image Format** to **BTYUV**, and the **Image Dimensions** to **320x240**.

The number of Frames per second captured (up to the limit of 30 fps) is set in the **File Folder** icon in the **Motion Video Capture toolbar**.

Using the mouse in WinTV

The Windows mouse is used to move the TV window, resize the WinTV window, select menu options and make the WinTV window appear in full screen or adjustable screen size. WinTV uses the left and right buttons. The middle mouse button (if your mouse has one!) is not used.

Single click TitleMode/NoTitleMode makes WinTV easy to use!

The left button is used for all control and select functions. ***The right mouse button is clicked inside the WinTV video window to hide or display the tool and menu bars and to turn off the full screen TV mode.***

These modes are called **TitleMode** and **NoTitleMode.** You can toggle back and forth between **TitleMode** and **NoTitleMode** by simply clicking your right mouse button when your mouse is inside the video window.

The WinTV window is moved in **NoTitleMode** by clicking and holding your left mouse button in the middle of the TV window and moving it to the new position. Then let it go! Move the TV window in **TitleMode** by clicking and holding your mouse button on the Title Bar (where it says Hauppauge WinTV32), holding it down and dragging it to the new position.

You can set a different size and a different place on your VGA screen for the WinTV window in **TitleMode** and **NoTitleMode**. Then by simply clicking

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with the right mouse button, the WinTV window will switch from one saved size and place on the screen to the other! Try clicking your right mouse button several times in the middle of the TV window and see what happens.

To set the window size, "grab" a corner of the video window with your mouse (hold down the left mouse button when it is on one of the corners of the WinTV window) and then drag it to the preferred size, then release the mouse button. You can set different sizes for **TitleMode** and the **NoTitleMode**.

For example, if you would like to watch WinTV without the tool/menu bars in a small corner of the Windows screen, click the right mouse button inside the WinTV video window and the tool/menu bars will disappear. Then drag the WinTV window to its preferred size and location on the Windows screen. Now click the right mouse button inside the WinTV window and the WinTV application will now save the correct size and location on screen for **NoTitleMode**. Every time you select the **NoTitleMode** by right clicking in the WinTV window, the window will resize and move to the saved position.

To select which bars and indicators are shown when in the **TitleBar** and **NoTitleBar** modes, click on **Display/Preferences**. You can eliminate the status bar and the toolbar in the **TitleMode** or add the status bar in the **NoTitleMode.**

Setting up your TV channels

To set up the TV channels in the WinTV application, click on **Configure/Channels/SuiteManager**:

You'll see the **Channel Manager**. From the **Channel Manager**, you can Add, Edit or Delete channels.

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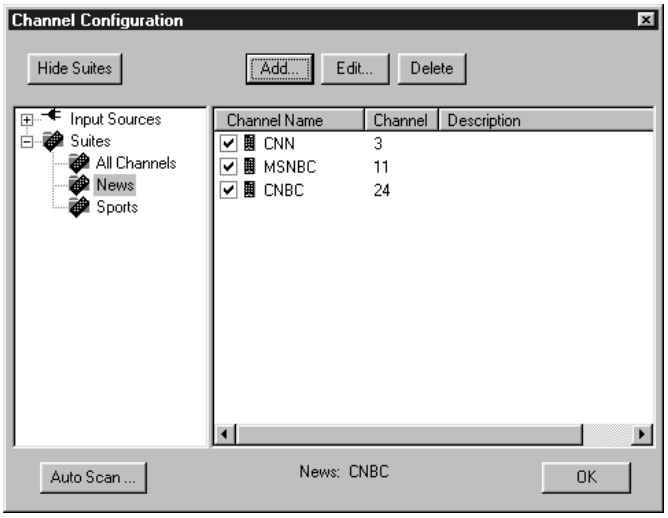
You can also create channel suites, which are subsets of the **All Channel** suite. For example, you can have a suite of just TV news channels, and name this suite "News".

Channel Suites allow you to create a subset of all the channels, so that you can channel surf through only those channels. To set up a new Channel Suite, click on **Show Suites**. Then click on **Suites** (in the left column), then click **Add**. You can then name the suite and add channels to the suite.



To change to a suite, in the WinTV32 toolbar, right click your mouse button in the **Channel Suite** area (the default is All Channels). You will then see a list of suites. Click on the one you would like to switch to.

Setting preferences in Title mode

Click **Display/Preferences/View** and then click on the **Title Mode** tab.

Aspect Ratio On forces the viewed aspect ratio to 4:3. When turned off it will allow arbitrary aspect ratios.

Annunciators On display the TV channel on screen when you change channels, and display the volume when you adjust the volume.

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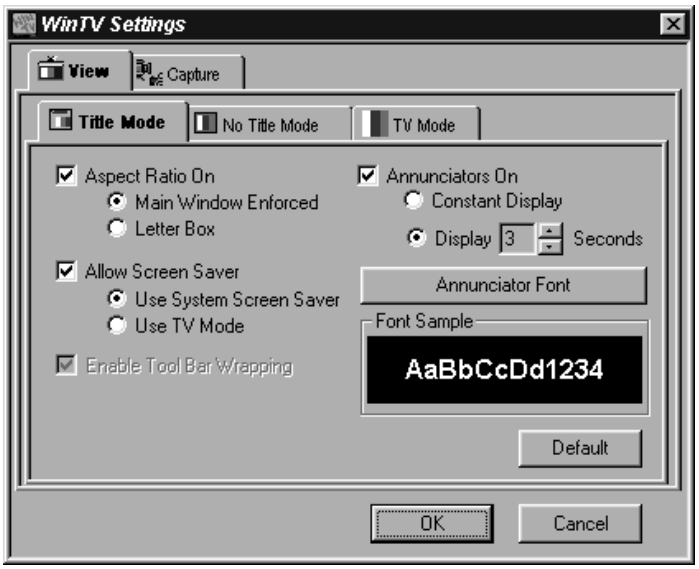
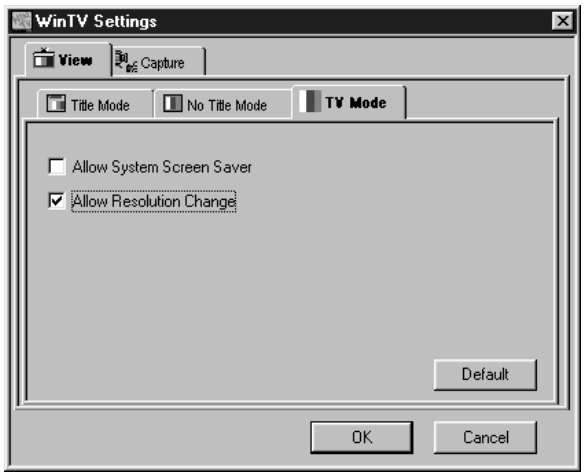


Setting full screen TV mode

Click **Display/Preferences/View** and then click on the **TV Mode** tab.



Set **Allow Resolution Change**.

If you then click on the **TV** icon on the WinTV32 Toolbar, the WinTV application will switch the VGA mode to the chosen size (using the Windows **Quick Res** feature), allowing the WinTV image to be viewed full screen.

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Image Save, Print and Copy to Clipboard

The process to save, print or copy an image starts with the digitizing of a single video frame. When one of these functions are clicked on, the **WinTV** moves the next video frame into your PC's main system memory instead of the VGA display. Your PC's processor then converts the digitized video image into a 24-bit DIB image (a format which is used internally in Windows), and then copied back into the VGA memory so that you can see the image which will be printed or saved. This becomes a "frozen" image in the WinTV window.

The video images which are digitized can be saved to disk, printed to a color or black/white printer or copied to the clipboard. These functions can be viewed from the File menu:

There are a few things which need to be noted. First, because a video frame is composed of two "fields", an odd field with the odd lines in the image and an even field composed of the even lines, there might be a distortion in the frozen image if there was rapid motion while the image was being moved into main system memory. This distortion is called "interlaced artifact".

Another item to note is that the video image, when converted into a 24-bit DIB image, will look lighter then it did when it was in motion. You can adjust the image's briteness, contrast and color saturation and hue by clicking on **Configure/Color**. These adjustments are made during the digitizing process on the **WinTV** board and will affect both the "live" image and the frozen image.

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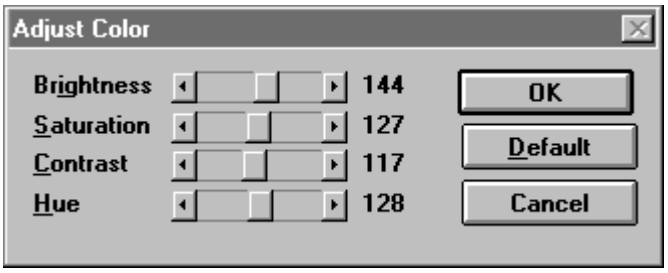
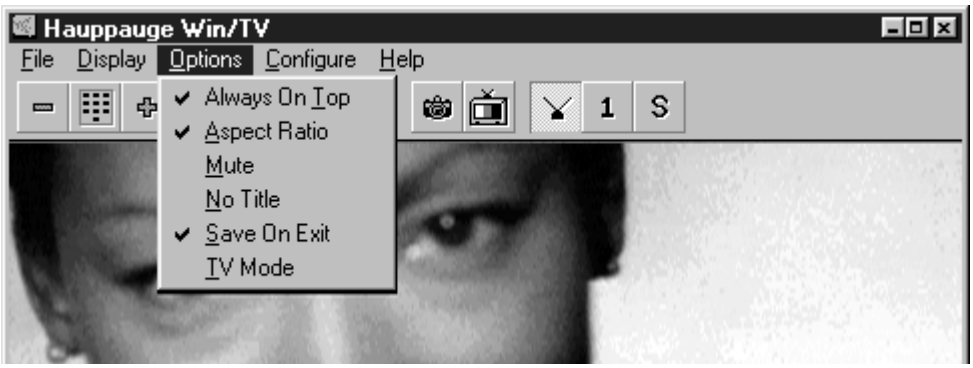
Adjusting the video image's color

You can adjust the briteness, contrast saturation and hue of the live TV image by using the color adjustment menu. Click on **Configure/Color** to get the adjustment menu:



Options Menu

The Options Menu has settings for Always-on-Top mode and Aspect ratio mode plus duplicates buttons found on the toolbar for operation without a mouse.



Always-on-Top mode

The Always-on-Top mode conveniently puts the TV window "on top of" other Windows windows. In this mode, you can easily move the TV window to the No-Title mode by clicking the right mouse button in the middle of the TV screen.

Aspect ratio

The natural TV window size has a 4:3 aspect ratio. By unclicking the **Aspect Ratio** setting in the Options menu, you can change the TV window to any size you want! Make it tall, short or any size. With **Aspect Ratio** turned on, the win-

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dow size will always be forced to a 4:3 ratio.

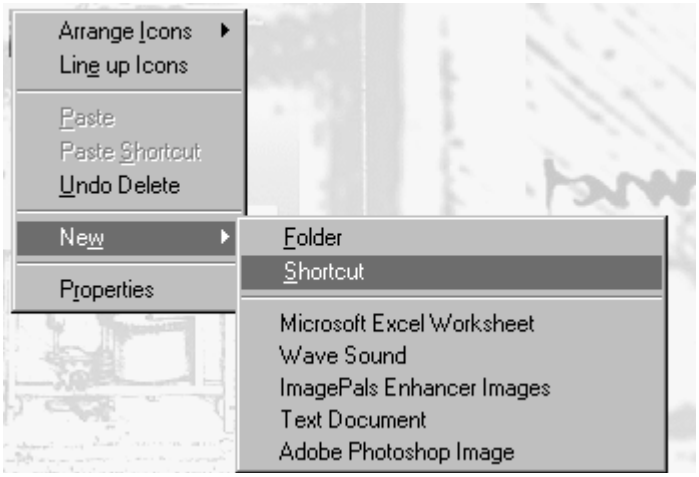
Keyboard control of the WinTV32 application

Convenient keyboard controls duplicate the functions of the WinTV toolbar.

Volume Up	=	Page Up
Volume Down	=	Page Down
Mute	=	Ctrl+M
Channel Up	=	Plus (+)
Channel Down	=	Minus (-)
Print a Frame	=	Ctrl+P
Copy to Clipboard	=	Ctrl+C
Copy from Clipboard	=	Ctrl+V
Freeze Frame	=	Ctrl+F
Full screen TV mode	=	Ctrl+T
Right mouse button	=	*Title mode/No title mode/Turns off TV mode*

Setting up a shortcut

You can set up a shortcut to the WinTV application at any time. To do this, click your right mouse button on your Windows background. Then click on **New**. You should see the following dialog box:



Then click on **Shortcut**.

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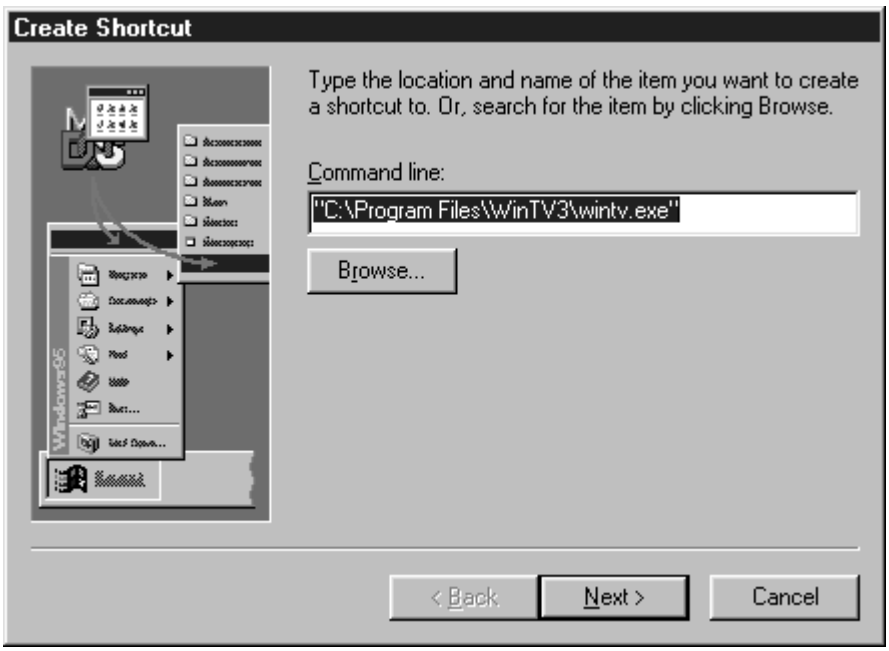
Click on **Browse**, the look in the **Program Files / WinTV** directory. Select **wintv32.exe**.



Then click on **Finish** to set up the shortcut.

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Creating Digital Video movies with WinTV-Capture

Overview of Video Clip Capture

Live video which is digitized by the **WinTV** video digitizer (see "**How the WinTV works**") can be "captured" as a video sequence (or "video clip") by using the **WinTV-Capture** program. This program is provided on the **WinTV Installation CD-ROM** and uses Microsoft's Video for Windows capability which is built into Windows 95.

WinTV-Capture creates a file type called AVI (Audio/Video Interleaved) on your hard disk. This file contains digitized video and, optionally, audio.

WinTV gives high quality captured video by storing uncompressed digitized video in an AVI file This compares with compression methods such as JPEG and MPEG, where some loss of video quality is accepted in order to reduce the amount of data stored. Uncompressed video capture creates high quality digital video movies, but requires optimized system performance to avoid lost video frames (called "dropped frames".)

To create the best quality digital videos, use the following steps:

- Capture uncompressed video with the **BTYUV** format in an AVI file.
- Edit the raw video. Add special effects, cut, paste, etc. using one of the popular digital video editing programs such as Asymetrix Digital Video Producer, Adobe Premiere or U-Lead MediaStudio.
- After editing the video, compress the video for the playback target. For example, if you are creating a video to be used in a multimedia presentation, compress with either Intel's Indeo or Supermac's Cinepak. If you are creating a CD-Video, use MPEG compression to get up to 74 minutes of video on a CD-ROM.

Using WinTV-Capture

The **WinTV-Capture** program is an easy-to-use program that previews live video, captures an AVI file to disk, and plays back the AVI file to your VGA

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screen. **WinTV-Capture** can capture and playback video clips, but does ***not*** provide video editing capabilities. Digital video editing programs such as Asymetrix Digital Video Producer, Adobe Premiere or U-Lead MediaStudio can be used to edit your digital videos.

With **WinTV-Capture** you can set the number of frames per second that are captured and the size of the video image. You need to experiment to determine how much video your PC can store to the disk (in terms of image size and frames per second) because capturing video clips is very CPU and hard disk intensive.

Here is the **WinTV-Capture** window:

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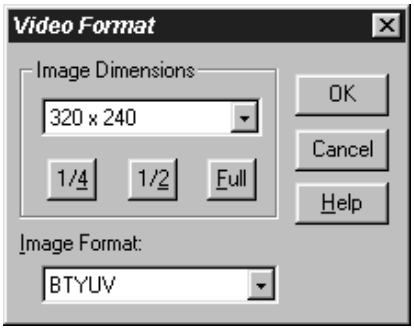
Setting the video image size

The maximum suggested video image capture size is 320x240. When playing back the video on slower PC's, a smaller image size might be needed. To set the image size, click on **Options/VideoFormat**:



The WinTV-Capture program can use several different types of color formats when capturing video clips. For highest capture performance, choose the BTYUV or YUV9 formats. These give excellent capture image quality and frame rate, but will give slow performance on playback of 320x240 image size videos.

BTYUV or YUV9 formats are also good if you plan to edit your video clips with Asymetrix Digital Video Producer, Adobe Premiere or MediaStudio, and plan to compress the digital videos using Cinepak or Indeo. If you do not plan to edit your videos and want good playback performance, choose a smaller image size (160x120) or try RGB15 instead of BTYUV. Capture and playback performance is determined by your system configuration, including CPU and hard disk speed.

Setting the number of frames per second captured

To set the number of frames per second captured, click on **Capture/CaptureSetup**:

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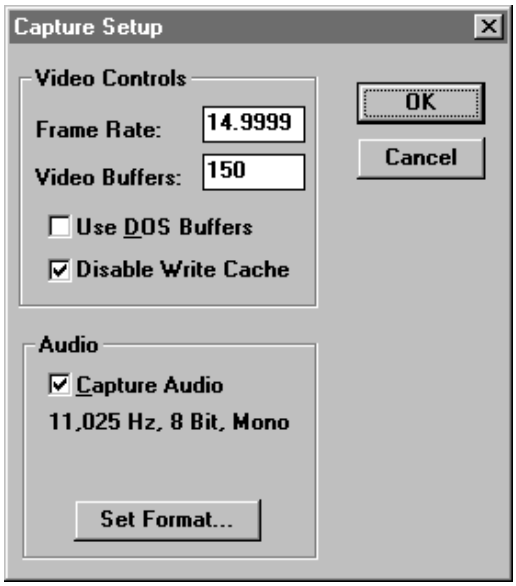

The number of video buffers will depend upon how much RAM you have in your system. The maximum number of buffers is 1000.

After setting the video format, the number of frames per second and possibly creating a new file name (by clicking on **File/SetCaptureFile**), you can start capturing video by clicking on the CaptureVideo icon.

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Preview Video

To preview live video, click on **Options/PreviewVideo**. This shows how your saved video clips will look after been captured. The colors will be limited to the number of colors used by your VGA display driver. For example, if your VGA display driver is in a 256 color mode, you will only see 256 colors in the Preview window, even though a 16-million color AVI file will be captured.

You **should not** capture AVI files in Preview mode.

Using Audio with WinTV-Capture

To capture audio along with video, the WinTV must be connected to a sound board capable of saving sound clips. To connect WinTV to a sound board do the following:

a) Make sure the audio output of the WinTV card is plugged into the **LineInput** of the sound board.

b) Make sure the LineInput volume for recording is set correctly and not muted. Open the Volume control panel, then click on **Options/Properties**. In the panel **Adjust volume for recording** set for **Recording**. Make sure LineInput is checked under **Show the following volume controls** and that the volume for LineInput is not muted and is set at an appropriate level.

Note: *Capturing audio along with video puts a greater strain on your PC then capturing video alone. If your PC drops many frames while capturing audio and video together, then capture the audio separately with the audio capture utility from Windows. The audio can be merged with video later on during the video edit stage.*

Suggestions on capturing video

Captured image sizes can be either 160x120 or 320x240 pixels.

For the best trade off between image size and captured frames per second, use a 320 x 240 image. With a 486/66MHz processor (or better) and a reasonably fast hard disk drive, you should be able to capture 30 frames per second using the BTYUV format.This format uses a 2.5 :1 compression ratio compared to “raw”

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24-bit per pixel video.

The consumption of hard disk space is dependent upon the size of the video image while capturing, the image format plus the number of frames/second. Using the BTYUV image format, the following chart shows hard disk space consumed:

image size	frames/second	bytes per second	1 minute video
160x120	15 frames/sec	425 Kbytes/sec	26 Mbytes
320x240	15 frames/sec	850 Kbytes/sec	52 Mbytes
320x240	30 frames/sec	1.7 Mbytes/sec	104 Mbytes

Video consumes quite a bit of hard disk space! At 320x240, you will only be able to store about 10 minutes of video on a 1 Gigabyte hard disk!

To reduce the amount of hard disk space used by your digital videos, you can edit the video using one of the popular 32-bit digital video editors (such as Adobe's Premiere or U-Lead's MediaStudio). After editing, you can compress the video using a software playback format such as Indeo or Cinepak (both of these are supported by Windows95). Typical compression achieved by these formats is 30:1.

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Tips on improving capture performance

Choose **Overlay Video** from the Video Capture Options menu will allow the video image to be displayed during capture. This mode also allows WinTV-Capture to run faster during capture. Choosing **Preview Video** will show what the captured image will look like when played back through the VGA adapter, but should not be used for capturing video.

Do not use DoubleSpace or any other disk compression scheme! This severely slows down your hard disk.

Turn off screen savers and do not connect to a local area network.

Most professionals capture video and audio separately. This allows them to "lay down" the audio track on top of the video tracks while editing. Capturing video separately will increase the performance of your video captures.

There are several hard disks on the market which are designed for higher performance video captures. These drives use 1:1 interleaving and track caching to eliminate gaps caused by a hard disk drive seeking to the next track. They are available with both IDE and SCSI interfaces.

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Teletext Data Reception using VTPlus (European WinTV boards)

Teletext is used in Europe and other parts of the world to transmit digital data along with a television picture. Teletext data is transmitted in an invisible part of the TV picture called the "Vertical Blanking Interval" or VBI.

Teletext data is normally formatted into pages. A master index is also transmitted which lists the various categories that can be received, and which Teletext page they are being transmitted on. Teletext data must be inserted into the VBI by your TV broadcaster, and can only be received on the Win/TV boards if the Hauppauge Teletext decoder is installed.

An example of a Teletext page follows. Each Teletext page has a page number, a date and the current time in the right hand corner:

VTPlus for Win/TV is a sophisticated Teletext software application which runs exclusively on the Hauppauge Win/TV card. VTPlus allows you to view multiple Teletext pages, save or print Teletext pages and create Dynamic Data Links so that Teletext data can be used in other Windows applications. The Win/TV application does not have to be active while the VTPlus Teletext application is running.

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Installation of the VTPlus software

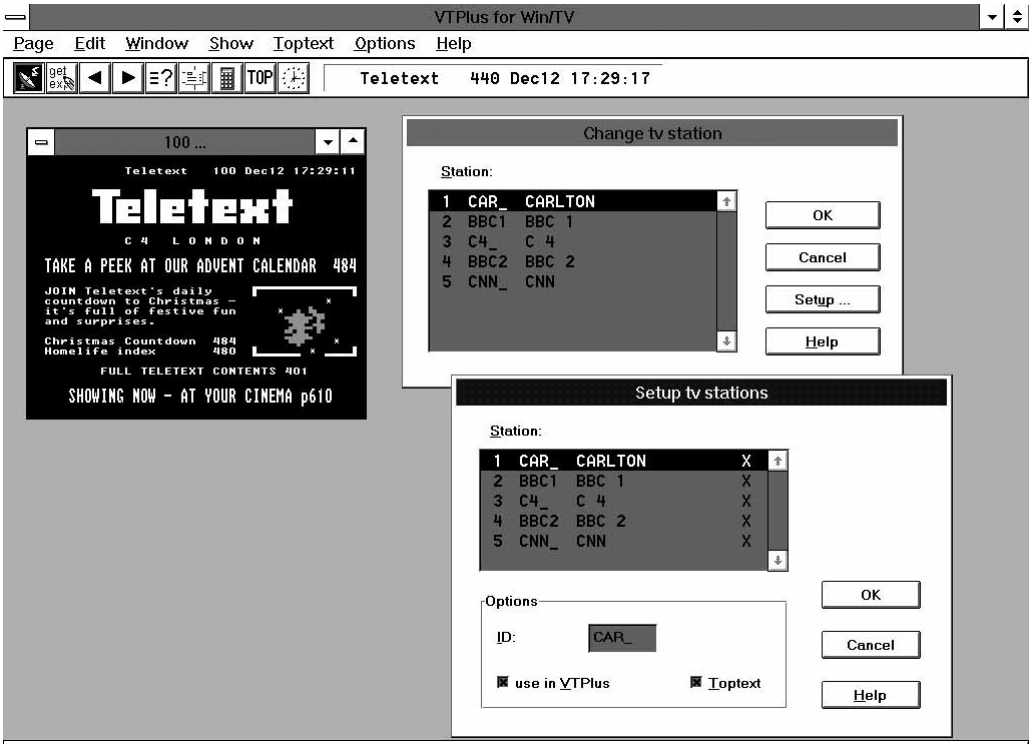
If the VTPlus application is provided on CD-ROM, then it will automatically be installed from the **WinTV Installation CD-ROM.**

If it is provided on diskette, click on the **Start** button, then **Run** and then type: A:\VTSETUP.EXE The program will install in the default directory c:\VTPLUS. The installation creates a group headed **VTPlus for Win/TV** and three icons will be created. The main icons are:

VTPlus program:

VTPlus On line help:

VTPlus window



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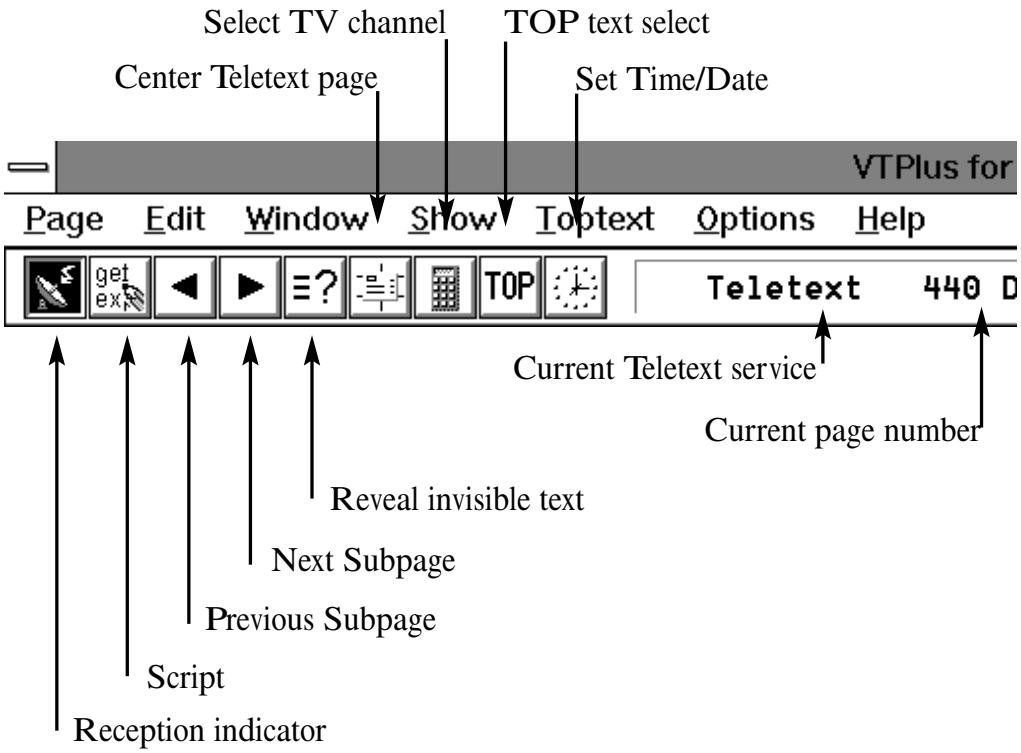
VTPlus toolbar



1. **Reception indicator**: when this symbol is red, your requested page is being received.

2. **Script**: shortcut for **Options/Script**. See **Help** for information on programming the Script.

3. **Select previous Subpage**: indicates, when dark, that there are subpages before the current subpage. When a light grey, there are no subpages before the current page.

4. **Select next Subpage**: indicates, when dark, that there are subpages after the current subpage. When light grey, there are no subpages after the current page. For example, if the current page is 100 and there are no subpages in page 100, the **Select next Subpage** icon will be light grey.

5. **Reveal button**: shortcut for **Show/HiddenCharacters**. When you use this button you might see hidden text, such as **VPS** time codes or answers from a Quiz.

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6. **Arrange in Center**: shortcut for **Window/ArrangeInCenter**. When you click on this button, the actual page will be positioned full size in the center of the Window. The centralized page will return to its original position as something else is activated.

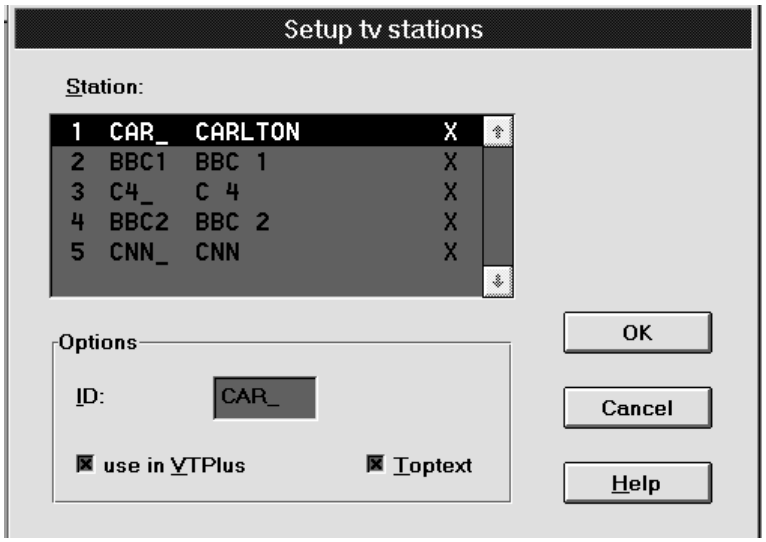
7. **Channel Selection**: shortcut for **Options/Change TV Station**.

8. **Toptext window**: shortcut for **Toptext/ToptextWindowVisible**. When you click the **TOP** button, the Toptext window will appear. Toptext is also being received with invisible Windows. Toptext is a protocol being used in Germany by TV stations like ZDF/ARD to help the user get a clear, fast overview of the available information being transmitted and to give the user fast access to this transmitted information.

9. **Set System Clock**: shortcut for **Options/SetSystemClock**. Click on this button with your mouse and the received Time from the Teletext channel will be used by the System clock of your PC.

Setting up VTPlus TV channels

By double clicking on the **VTPlus for Win/TV** icon, the VTPlus Teletext application will be launched. The channels that have been previously tuned in by the Win/TV application now have to be selected for VTPlus. To do this, select **Options/ChangeTVstation**:



A menu will pop up called **Setup TV stations**. Now select all the stations required and click **use in VTPlus** box for each station desired. Up to three letters

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can be used as the channel ID, to allow you to identify which channel you are viewing.

Quickselect Teletext pages

By using the **Ctrl+N** key a Create and Receive page pops up requesting a page number. Type the requested page number. If this page is to be received continuously (every time the page is received, the page is automatically updated), click the **Update Continuously** box.

Many Teletext pages have a reference to other pages. For example, the TV guide section has a number of page referrals to movie background information which is being transmitted in other pages. Quickselect allows you to select these pages directly. Double click the left mouse button on the desired page number in the current Teletext page, and a new Window appears with the selected page.

If you do not want to open a new Window, but simply change to the new page, push the **Shift-Key** while double-clicking on the page number in the current Teletext page, and the new selected page will appear in the original window.

With Quickselect, several pages can be called at once. If a Teletext page refers to a page sequence such as "Share Prices: 500-505", mark the first page number with a single mouse click, click a page number and start the reception with a left Doubleclick on the end page. The distance between the selected pages may not be more than 11.

Example: "News from Page 300-303" are selected with by a single click on 300 and a Doubleclick on 303. The multiple page reception will open individual windows for each of the pages within the selected page numbers.

Dynamic Data Exchange with Teletext

DDE links can be created between the Teletext pages and any Windows program supporting DDE. Programs supporting a live DDE link from a Teletext page include the Microsoft EXCEL spreadsheet and Microsoft WORD.

To create a link, use your mouse to highlight the section of the Teletext page of interest. For example, if the current Teletext page has financial data, highlight with the mouse the financial item of interest by click on the beginning of the field on the Teletext page, holding your mouse button down, and releasing the mouse button at the end of the field.

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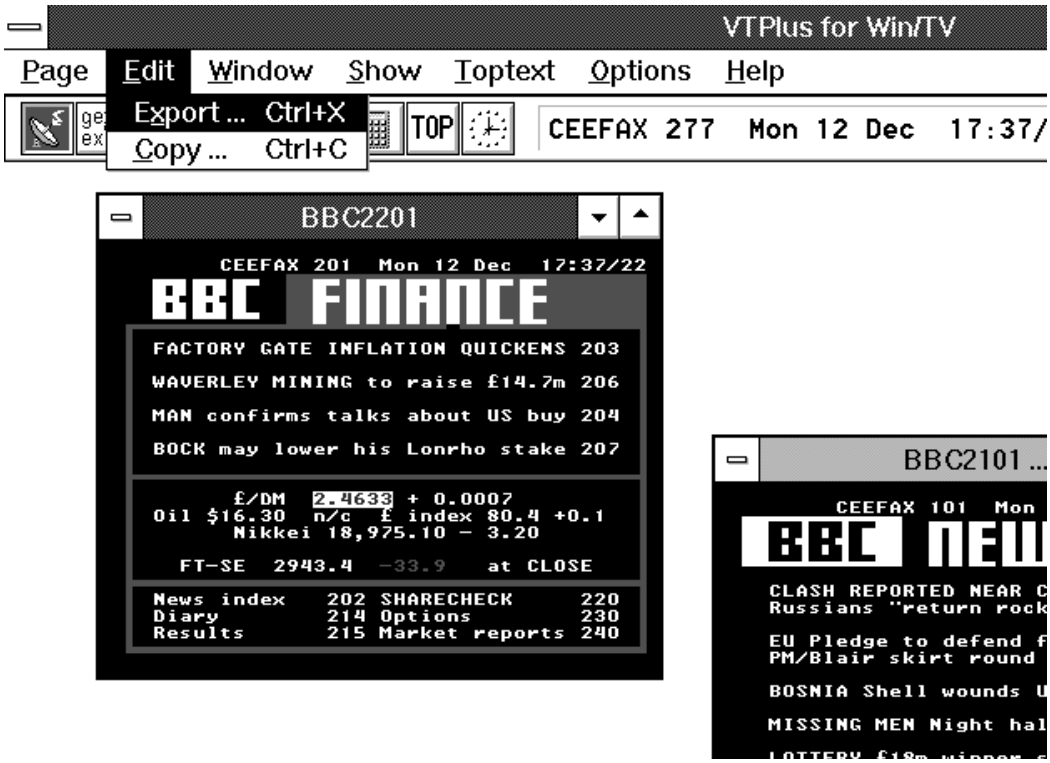

Then click on **Edit/Copy** option from the Edit menu and click the left button mouse. The information is now in the PC memory. To create a link to the DDE supported applications (such as your spreadsheet), select “edit past link” in your application. VTPlus will now create a direct link to your program.

When the data changes in the selected field on the Teletext page, VTPlus will deliver the data automatically to your DDE supported program. Updates through the DDE occur when all subpages are being received and at every update, when the option **Update Continuously** is marked.

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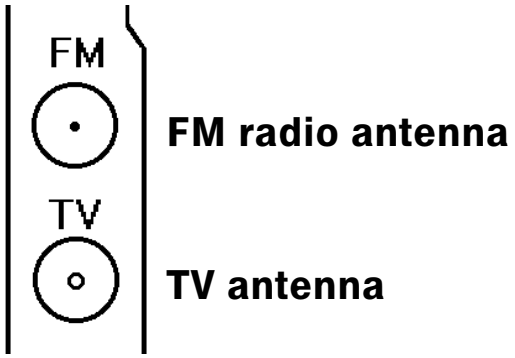
Using the WinTV-radio Application

If you have purchased the **WinTV-radio** board, in addition to watching TV you can also tune in radio stations on the FM band.

The **WinTV-radio** board has two aerial inputs, one for TV and one for FM radio. If your TV antenna (or cable TV network) carries both TV and FM radio, you can connect to the TV antenna connector only:



Running the WinTV-radio application

Click on **Start / Programs / WinTV** and then **Radio** to run the radio application.

The WinTV-radio window

Note: Radio cannot be hooked up to the cable TV source. It must use either a supplied FM antenna or a digital FM antenna.

Using the WinTV-radio Buttons

Volume: The audio volume is adjusted by setting the LineIn level in the Volume Control applet.

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Tune: Fine tune the current radio channel.

Seek: Search for the next active FM radio channel.

Mem: Sets a FM radio channel preset. To assign the current station to a preset, click on **Mem** and then on one of the **Preset** buttons (**1-10**).

Mute: Turn off the sound.

Mono: Force mono reception.

Scan: Searches for new stations until you click on Stop. Click the RIGHT mouse button anywhere on the WinTV-radio window to set the Scan mode.

Min: Minimizes the WinTV-radio window.

CD: Starts the Audio CD-Player for playing back Audio-CD´s.

TV: Closes the radio application and starts the WinTV application.

OFF: Closes the radio application.

1 - 10: Preset 1 - 10

Programming the Presets

To assign a radio station to a special Preset button do the following:

1. Tune in the desired station with the **Seek** button (or by using **Tune**).
2. Click on the **Mem** button. It will change to red.
3. Click on one of the **Preset** buttons (**1-10**).

Using the right Mouse button

When you click the RIGHT mouse button in the WinTV-radio window, this menu comes up:

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1. **Scan Mode: Presets** - When **Presets** is chosen and the **Scan** button is clicked, WinTV-radio tunes in only the stations which are assigned to the Preset buttons.

2. **Scan Mode: All** - When **All** is chosen and the **Scan** button is clicked, WinTV-radio tunes in all radio stations.

3. **Frequencies** - A list of all frequencies assigned to the preset buttons is shown.

4. **Tool Tips** - Turn on/off bubble help.

5. **Minimize** - Minimizes the WinTV-radio application window.

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How WinTV Works

How WinTV displays Video-in-a-Window

To display live video on your PC monitor, the **WinTV** boards use a technique called **PCI Push**. With this technique, the live video is digitized by the **WinTV** board and then moved over the PCI bus into the memory of your VGA display adapter. Here are the steps in getting live TV onto your VGA screen:

- the **TV Tuner** is controlled by software to tune to a specified TV channel. It takes a modulated television broadcast signal and turns it into **demodulated video** and **audio** signals.
- the **demodulated video** from the TV tuner goes into the **BT848 Video Digitizer**, where it is converted into a digital form using YUV 4:2:2 sampling. This is a high quality sampling format which results in resolution equivalent to 24-bits of RGB per video pixel.
- the **demodulated audio** goes into an on-board audio switcher. **WinTV**'s audio switcher can receive audio from the TV tuner or the **Audio Input Jacks (Left, Right)**. The output of this audio switcher goes to both the **Audio Out Jack** (**Line Out**) and the **CD-audio passthrough connector** for connection to a sound card.
- the BT848 Video Digitizer is also a **PCI-bus Master** device. After the video pixels are digitized, it "pushes" them over the PCI bus into the memory of your PC's VGA display adapter. It does this without requiring your PC's processor to do any work, therefore live video can be displayed in a window on your VGA screen without slowing down your PC.

Video Overlay mode of operation

Live TV can be displayed on your VGA screen by using either the **Video Overlay** or the **Primary Surface** mode. The mode which is used is dependent upon your PC's hardware and software. If your PC:

- has a VGA display adapter which supports Windows95 Direct Draw,
- and your VGA has a **Video Port** which is designed to accept digital video,
- and your VGA has enough **display memory** to hold the digitized video image

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then **WinTV**'s Video Digitizer "pushes" YUV 4:2:2 video pixels for temporary storage into an off-screen part of the VGA memory called a **Secondary Surface**. This method is called **Video Overlay**. The VGA display adapter will then convert the video image from YUV 4:2:2 into RGB video and continuously overlay the VGA screen with the video image. Using Video Overlay, the VGA controller treats the live TV image just like any other window, which results in a 24-bit video image on your VGA screen. You will also be able to display full screen TV at all VGA resolutions.

VGA chips which have **Video Ports** include: the S3 Trio 64V+, S3 ViRGE 3D, Cirrus Logic 5446, ATI Rage II, Tseng Labs ET6000.

Primary Surface mode of operation

If your VGA display adapter has a Direct Draw driver but does not have either a Video Port or enough memory to hold the video image off-screen, then the **WinTV** board converts the YUV 4:2:2 video pixels into an RGB format which is compatible with your VGA display adapter's operating mode (8 bits per pixel, 16 bits per pixel or 24-bits per pixel) and then moves the pixels directly into the display memory or **Primary Surface** of your VGA.

VGA chips which can support Primary Surface mode include: the S3 Trio 64, S3 Vision 968, Matrox Millennium and Mystique and Tseng ET6000.

This results in a high quality video image whose color depth is dependent upon your VGA display adapter's operating mode. For example, your TV image when running in a 256 color mode will not be as good as when running your VGA in 16-bit per pixel mode.

Also, because the video is moved directly onto the Primary Surface, features such as close captioning and full-screen TV in resolutions greater than 640x480 will be disabled.

How WinTV decodes Intercast Content

Intercast Content is transmitted by a TV broadcaster in a part of the TV signal called the **Vertical Blanking Interval**. The VBI, as it is often called, can contain up to 10 lines of Intercast Content, plus one line of Closed Captioning data. The data consists of a series of 1's and 0's and would show up on your TV screen (if you could see it) as a series of black and white dots on each line in the VBI.

The **WinTV** board uses 5x oversampling to digitize the video lines in the VBI which are used for Intercast Web pages. Since each line in the VBI has 35 bytes of

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data, there are 1400 samples per line. This digitizing is very similar to the digitizing used for TV video, but instead of using the PCI bus to moved digitized video into VGA display memory, the WinTV board moves the digitized lines from the VBI into main system memory.

Once in main system memory, your Pentium processor can take the digitized line and extract the Intercast Content. The method of extracting the 35 bytes of Intercast Content in each VBI line uses such techniques as noise reduction and echo cancellation to extract valid Intercast Content even when given a noisy TV signal.

Intel's Intercast Viewer then displays the data in the Intercast viewer window.

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Troubleshooting

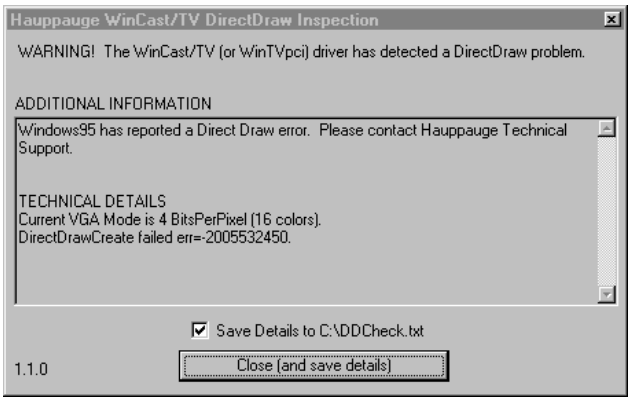
This chapter includes troubleshooting help for solving common problems.

Trouble shooting the WinTV driver

Problem: Error message “No suitable Direct Draw provider”

WinTV requires a Windows 95 Direct Draw driver for your PC’s VGA accelerator to provide TV-in-a-window and to extract Intercast Content from the TV signal.

The following message appears if DDcheck (which is run after installing the WinTV driver) cannot find a functioning Direct Draw driver:



Most (if not all) PCI VGA accelerators can be upgraded with a Direct Draw driver. If this message occurs, you can:

- install the latest version of Microsoft’s DirectDraw. To install DirectDraw, run the DXSETUP.EXE program from the DirectX directory of the WinTV Installation CD-ROM.
- Many VGA board and chip manufacturers (such as Diamond, Number 9, S3, Cirrus Logic and ATI) have updated drivers which include updated Direct Draw support. You can check on their technical support Internet Web sites for updated drivers.
- If your VGA chip was sold before Windows 95 was introduced in August 1995, there is a possibility that your VGA chip does not have (and will not

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have) a Direct Draw driver. In this case, you can upgrade your PC's VGA to use one that has proven compatibility with WinTV. Check the README.DOC file on the WinTV Installation CD-ROM for a list of compatible VGA's.

Problems with older VGA cards based on the S3 Trio64V+ chip

Some VGA boards based on the S3 Trio64V+ chip use an older VGA BIOS,which can occasionally cause a PC to "lock-up", especially when using full screen TV mode. Should you encounter such a condition, you will need to use an update which is found in the c:\Program Files\WinTV directory on your PC. To install this update so it takes effect every time you turn your PC on, copy this file to the C:\ directory, and add the line:

c:\765

to your AUTOEXEC.BAT file (found in the C:\ directory)..

Problem: TV image moves very slowly in the Intercast Viewer

This will occur if an updated Direct Draw driver is not installed in your PC. With some VGA's, if an updated Direct Draw driver is not installed, the Intercast Viewer will still work, but the video image is moved to your Intercast Viewer window through a Video for Windows Preview window, which displays at roughly 4 frames per second.

This problem can be fixed by installing an updated Direct Draw driver. See Problem: Error message: "No Suitable Direct Draw Driver installed" above.

Problem: Bad colors in the TV window

If your VGA display is running in 256 color mode, the TV picture will be displayed with only 256 colors. This compares with the 16 million different colors which are in the original TV image. The colors in the TV window will change depending upon which Windows programs are being run, and what color palettes are being used.

To fix this problem, first try running your VGA adapter at a minimum of 16 bits per pixel. If you do not have enough memory on your VGA adapter to run at 16 bits per pixel in the current resolution, either lower the resolution (example: from

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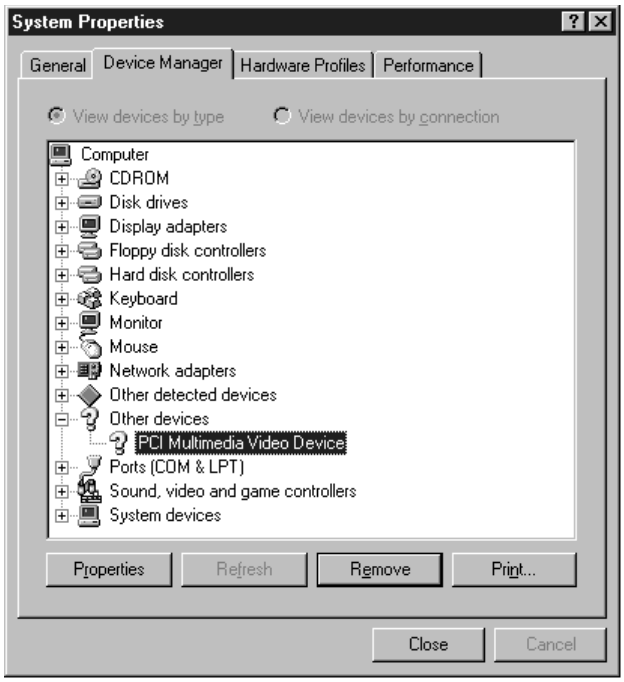
1024x768 to 800x600) or add more VGA memory to your VGA display adapter.

Error message: “No memory available” after running the WinTV application or “WinTV card not installed or drivers not loaded”

Sometimes, during the installation of the **WinTV driver** (see chapter 2 and the **New Hardware Found** menu) you do not answer all of the questions correctly and the **WinTV driver** does not get correctly installed.

In this case you might find the **WinTV** listed in? **Other Devices**. To delete this driver, highlight **PCI Multimedia Video device** and then click on **Remove**.

Then click on **Refresh** to request Windows95 to find the new **WinTV driver**.



System Lock-ups when using VGA cards based on the S3 Vision968 or 868

When using the WinTV with VGA boards based on the S3 Vision968, a small number of installations report random system lock-ups while using either WinTV or the Intel Intercast Viewer. Lock-up is quick, occurring within seconds of starting the application.

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This problem is related to a Plug-and-Play memory overlap between the Vision968 and the WinTV board. To fix this problem, you need to manually readjust the Memory Address of the WinTV board.

To change the address, go into DeviceManager by clicking on the Start button, then Settings then Control Panel. Then double click on the System icon and then the Device Manager tab.

Double click on Sound,video and game controllers. Then double click on Hauppauge WinTV. This brings up the Hauppauge WinTV Properties window. Then click on the Resources tab.

Un-click the Use automatic settings. Highlight Memory Range and click on Change Setting. The Memory Address range of the WinTV board is a set of two 8 digit hexidecimal number, such as:

FFFA0000-FFFA0FFF

To eliminate the memory overlap, either increase the second digit by 4, or decrease it by 8 (remember to use hexidemical arithmetic!). This changes the memory space between the Vision968 and the WinTV board to 64Mbytes. For example:

original configuration	increase by 4	decrease by 8
80000000-80000FFF	84000000-84000FFF	78000000-78000FFF
FFFA0000-FFFA0FFF	can't do	F8FA0000-F8FA0FFF

Trouble shooting the Intercast Viewer

For more troubleshooting solutions with the Intercast Viewer, press F1 to access online help. Also, see the README.TXT file in the Viewer directory.

Problem: Can't start the Viewer

If the Viewer can't detect a valid signal source, it tries to locate a valid signal source.

If a valid signal exists: the software asks if you want to make it permanent. Select one of these:

Click OK to make the setting permanent.

Click No to repeat the same process the next time you run the program.

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If no valid signal exists: a message displays and the software shuts down. To correct the problem, check the following:

Ensure that the cable or antenna connection is secure.

Have your cable company check the signal quality.

For more information, see Selecting the video source in Help.

Problem: Incomplete broadcast web page displays

When changing channels quickly, you might interrupt the beginning reception of Billboards and web pages sent by the broadcaster. In those instances, the default Billboard or a partial web page might display.

Make sure you remain on the channel for a few minutes to allow enough time to receive complete web pages or Billboards.

Problem: Missing broadcast web pages

When tuned to a channel that broadcasts Intercast Content, the Intercast Channel indicator animates. If no web page displays, try one or more of these:

Be sure you are not actively browsing (using the web browser).

Double-click the desired web page title or icon in the Media Library. The broadcaster may send many web pages connected by hypertext links before signaling the main web page to display. If part or all of the pages are missing, you can still view the existing pages through the Media Library.

Unless the broadcaster resends the pages, you cannot view pages sent before you tuned to the channel. Any links referring to those pages are also not valid.

Use the Diagnostics program to verify that the channel currently broadcasts Intercast Content. For more information, see Verifying a Channel Broadcasts Intercast Content later in this chapter.

Check with your local cable company. The cable company may have blocked the portion of the signal that sends Intercast Content.

If none of the above steps help, contact your computer dealer for more help.

Note: *The Intercast Channel Indicator animates when a channel broadcasts Intercast Content. However, the channel might or might not be broadcasting web pages.*

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Problems connecting to the Internet

If you experience problems connecting to the Internet, try one or more of these:

Make sure the Windows 95 Dial-Up Networking utility is correctly installed. .

Try to connect without using the Viewer.

If you can connect, contact your computer dealer for more help.

If you can't connect, contact your Internet access provider for more help.

Follow the instructions from your Internet access provider if they differ from these instructions.

Problems accessing Internet web pages

If you have problems connecting to locations on the Internet, try one or more of these:

Make sure you typed the address correctly.

Make sure you used a valid address. For example, the address might have changed or been removed.

Click the Stop button and try again.

Purge the cache. For more information, see Purge the Cache in Help.

Try again later. The host server might have reached its limit for the number of users it can handle.

Disconnect from the Internet and reconnect again.

Problem: Can't tune to a channel above 13

Check the video source setting in the video **Property Sheets**. When connecting cable to your PC, you must set the video source setting for **Cable**. If you select **Antenna**, the tuner stops at channel 13. For more information, see **Select the Video Source** in Help.

Problem: Poor TV picture quality

A poor TV image could be caused if your VGA display adapter does not have enough video RAM to hold the TV image. In this case, **WinTV** resorts to Primary Surface mode, which lowers image quality. A memory upgrade on your VGA display adapter might fix this problem.

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Another possible cause of this problem could be that your VGA display adapter does not support Windows 95 Direct Draw. In this case, you might consider an upgrade to a new Windows VGA accelerator which has Direct Draw and support and is compatible with the **WinTV** board.

A poor video picture might also indicate a bad signal. To verify a bad signal, try one or more of these:

Move your antenna or check your cable connection.

Move possible interference sources, such as other computers or television sets, away from your PC.

Contact the cable company to check your signal quality.

If you still experience problems, verify the signal quality by following these steps:

1. Quit the Viewer and run the Diagnostics Program. (Both programs cannot run at the same time.) To run the Diagnostics program: Click the **Start** button, then select **Run** then **c:\Program Files\Intercast\intrdiag.exe**

2. Click **OK**.

3. Tune to a channel that currently broadcasts Intercast Content. For more information, see Verifying a Channel Broadcasts Intercast Content later in this chapter. Stay on the channel for at least 5–10 seconds.

4. Check the data error rate graph in the lower left screen. Good television reception results in a low or zero error number. An occasional spike is not unusual, but consistent errors of more than 1 or 2 indicates a poor or weak signal.

Problem: TV picture displays a blue screen

The TV picture might display a blue screen under the following conditions:

Momentary loss of signal

A weak video signal

Channel changing

A scrambled channel

Note: *Changing channels may cause a temporary blue screen. To fix the problem, switch the channel up or down, then return to the original channel.*

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The audio might continue to broadcast, even though the video picture displays a blue screen. This indicates a strong audio signal and a weak video signal.

A scrambled channel is not a valid channel.

Problem: Snapshots don't display correctly

When using a 256 color palette, snapshots display incorrectly. To correct the problem, try one or both of these:

Change your Windows color palette to 16-bit.

Copy the image to a graphics program and save the image as a 24-bit image.

Verifying a TV channel broadcasts Intercast Content

1. Quit the Viewer and run the Diagnostics Program. (Both programs cannot run at the same time.) To run the Diagnostics program: Click the **Start** button, then select **Run** then **c:\Program Files\Intercast\intrdiag.exe**
2. Click **OK**.
3. Tune to the channel you wish to view.
4. When the channel broadcasts Intercast Content, the indicators in the Intercast Data Reception window display a horizontal bar that moves left to right, similar to stereo equipment indicators.

If you still cannot receive Intercast Content, contact Hauppauge technical support for more help.

Note: *Broadcasters might not send Intercast Content during every program or during commercials.*

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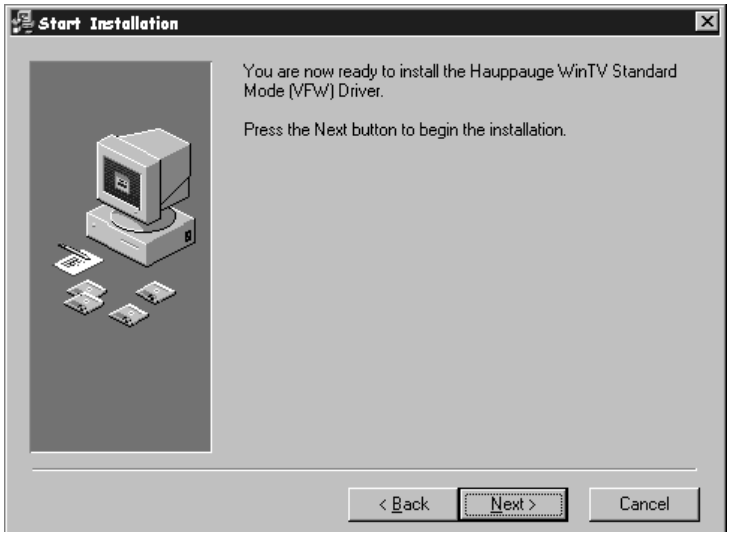
Updating the WinTV driver

From time to time, there might be a new **WinTV driver** which is an improvement over the existing driver. Driver updates can be downloaded from the Hauppauge Internet Web site (see the front page of this manual for the URL).

The **WinTV update** is combined with the driver uninstaller and the driver installer. Once you have downloaded the updated WinTV driver, you can install the update simply by running the downloaded program. You will see the following message:

Click **Next**.



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Click **Next**.

The **WinTV Update** program now uninstalls the existing WinTV driver, then copies a number of files to your hard disk:

After the WinTV Driver installation program has copied all of the files over to your disk drive, you will be asked to reboot:

Click **OK** to reboot your PC.

After rebooting Windows (either Windows95 or 98), an automatic installation of the new **WinTV driver** takes place. You will see the **New hardware Found** message, followed by the **WinTV Inspection** program and the **WinTV Direct Draw Check** program.

After installing a new WinTV driver, it is advisable to install the latest WinTV applications, including the **WinTV32**, the **WinTV-radio** and **IR remote control** applications (if your WinTV board has these features).

Removing the WinTV driver with HCWCLEAR

On occasion, it might be necessary to remove all traces of the WinTV driver on your PC's hard disk. To do this, there is a program on the **WinTV Installation**

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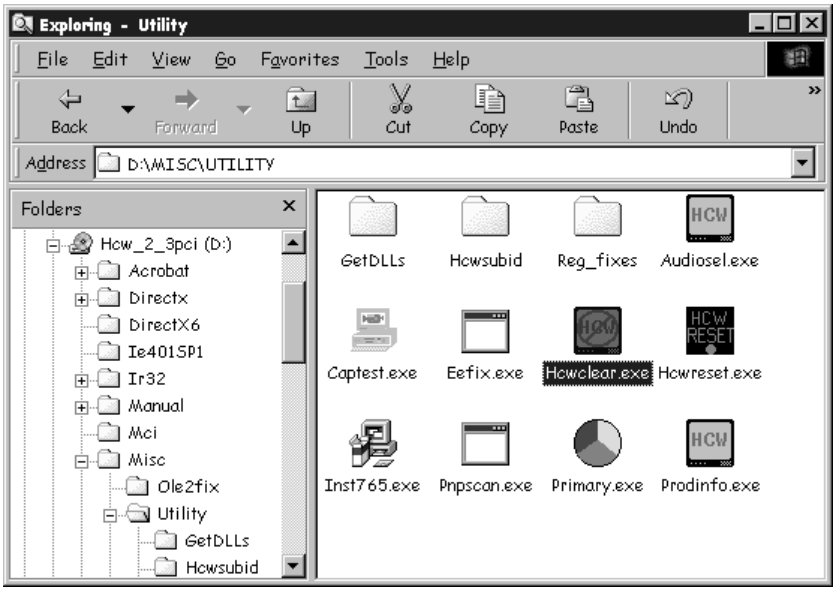
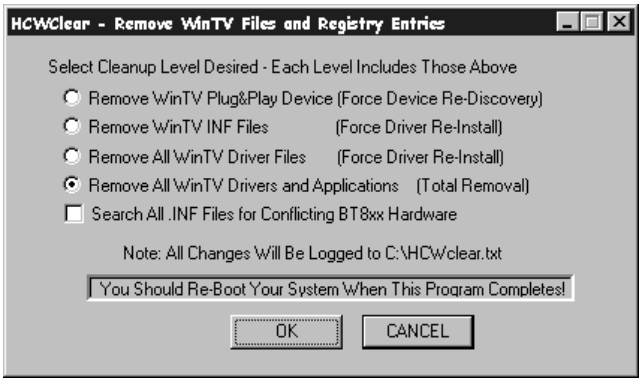
CD-ROM called **HCWCLEAR**.

Before running **HCWCLEAR**, you must manually stop the **WINTV IR Remote Control** application. This can be done by double clicking on the **IR icon** in the Windows toolbar, and clicking on **Stop**.

The **HCWCLEAR** application can be found in the **MISC/UTILITY** directory:



Once you have stopped the IR application, run **HCWCLEAR** by double clicking on its icon:



Click **OK**.

You will then see the following message:

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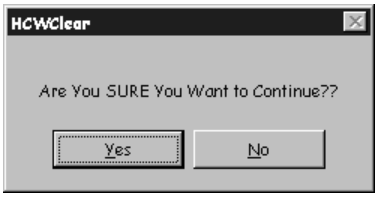
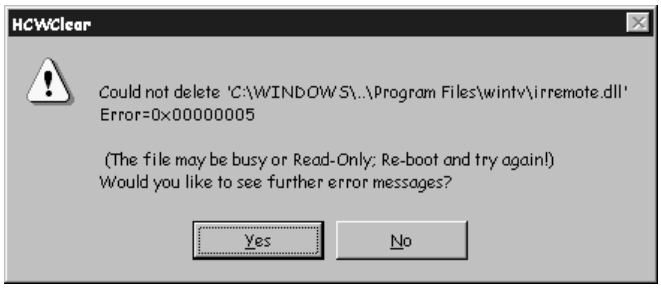


Click Yes.

If there are any errors which come up during the running of HCWCLEAR, then it means that there is an application running which is using the WinTV drivers. For example, if you see the following error:



it means that one of the WinTV driver files in use (in this case it is the IR remote driver). You can either ignore the error, or can can double check to make sure there are no applications running in the system that might be using the WinTV driver. In general, to make sure the re-installation is done correctly, all applications using the WinTV driver should be stopped before HCWCLEAR is run.

Restarting the WinTV driver with HCWRESET

A program is included on the WinTV Installation CD-ROM which resets the WinTV driver. This program can be run if some program has become “hung up” and the WinTV no longer is responding.

The HCWRESET application can be found in the MISC/UTILITY directory:

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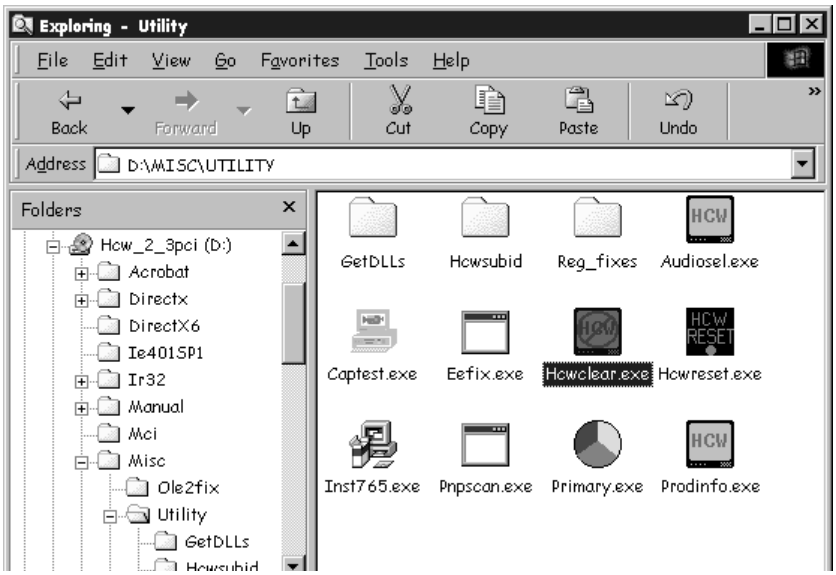

Simply double click on the **HCWRESET.exe** icon and the WinTV driver will be reset.

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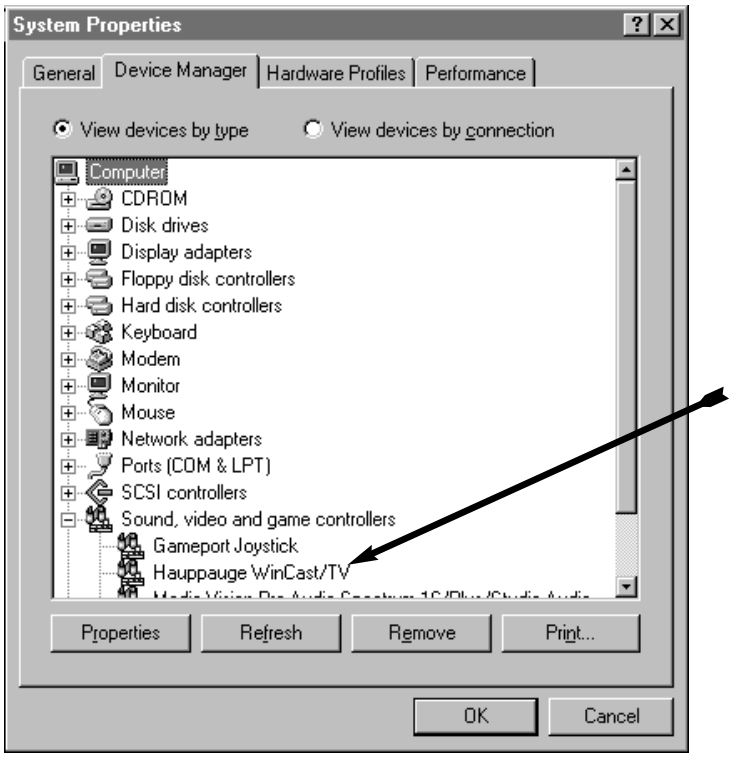
Checking the WinTV Plug-and-Play Setup

After the **WinTV** board has been installed, you can find out what I/O port and interrupt has been assigned by Windows95 Plug-and-Play by looking at its configuration in the **Control Panel**. Windows 95 Plug-and-Play will not let you change the Interrupt it has assigned, but you can, if necessary, change the Memory Address selected.

Open up **Control Panel** by clicking on **Start/Settings/ControlPanel**. Now open up the **System** properties setup by double clicking on its icon, then click on the **Device Manager** folder. Then click on **Sound, video and game controllers**:



then click on **Hauppauge WinTV** and then **Properties**:

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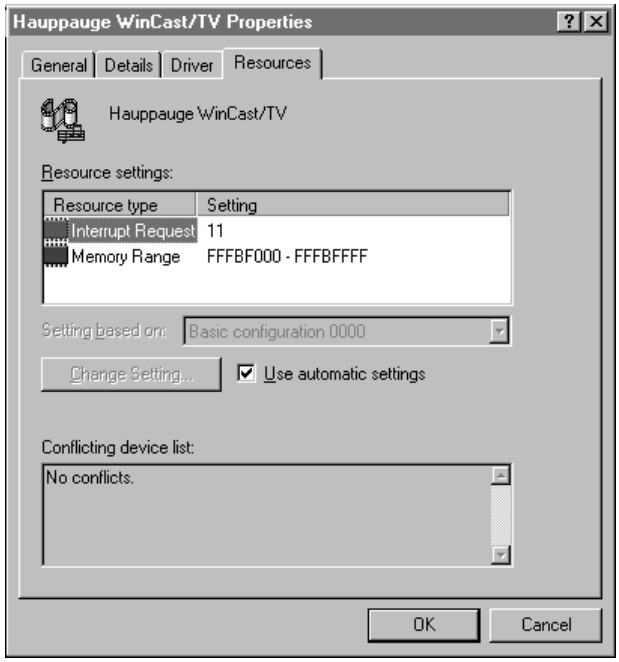
Click on **Resources** to see which resources Windows95 has assigned to the **WinTV**. Remember: the Interrupt setting cannot be changed (since it is assigned by Windows 95 Plug-and-Play) but the **Memory Address** can be changed if there is a memory conflict between the WinTV and another board.



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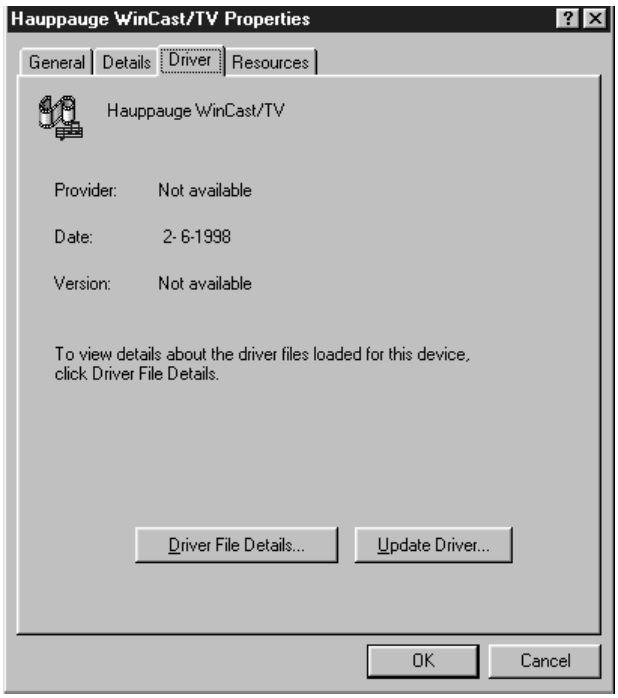
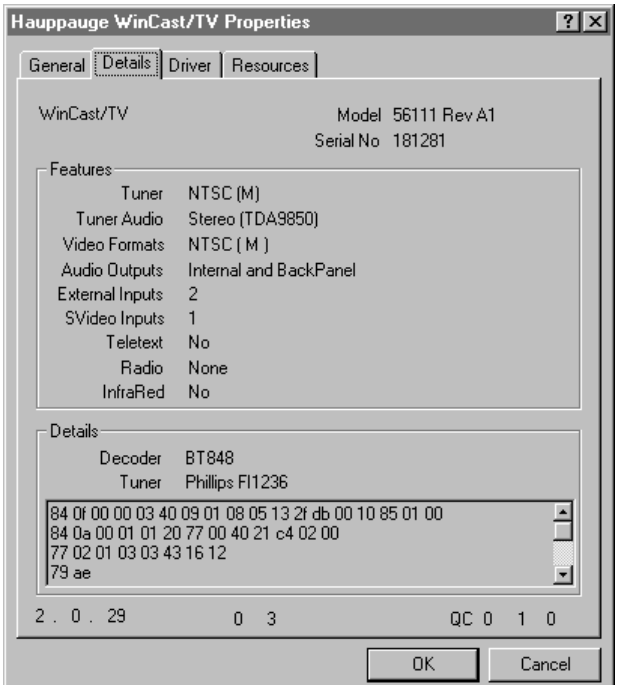
To see which versions of drivers are being used, click on **Drivers**:



You can also see the hardware configuration of the **WinTV** by clicking on the **Details** tab:



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This window will show the type of TV tuner, the serial number and revision of your WinTV board and other information which can be used to help diagnose hardware problems.

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Technical Support

Technical support telephone

If you have questions regarding installation or compatibility, please contact our technical support staff at:

(516) 434-3197
(516) 434-3198 Fax

Service

If you should need assistance with the installation, operation, or application of your Hauppauge WinTV board, there are several options available to you. Your primary source for information and problem assistance is always your dealer. Should the need arise, contact your dealer for on-site or repair service.

Hauppauge's Technical Support and Customer Service staff can aid in solving many problems. Our service department is available to repair any Hauppauge product. For completion of repair, the product must be returned to our factory.

If this WinTV board is not in working order, your only recourse is repair or replacement, as described above. UNDER NO CIRCUMSTANCES will Hauppauge be liable for consequential damages, including any lost savings, lost profits, or any other damages, caused by the use of the WinTV board or inability to use it, even if the dealer or Hauppauge has been advised of such liability or other claims.

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The Hauppauge Limited Warranty

Warranty

Hauppauge Computer Works, Inc. warrants the WinTV board to be free from defects in material and workmanship for a period of 2 years from date of initial retail purchase. We will, at our option, repair or replace a defective product. The limited warranty does not cover any losses or damage that occur as a result of:

- Improper installation
- Misuse or neglect or operation with faulty equipment
- Repair or modification by anyone other than Hauppauge Computer Works or an authorized repair agent

Please complete and return the Warranty Registration Form inserted in this manual. To obtain service under this warranty, contact Hauppauge Computer works at (516) 434-3197, or fax "RMA Department" at 516-434-3198. Please see the return procedure in the "Technical Support" chapter.

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