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DMS-100 Family

TOPS IWS

Base Platform User's Guide

IWS release Post-GA 17.1

Standard 17.07

January 2005

DMS-100 Family

TOPS IWS

Base Platform User's Guide

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1.0 Introduction

This document provides a TOPS Intelligent Workstation (IWS) user with the following information:

- Procedures for installing and configuring adaptor cards and software
- Description of screen saver application
- Description of data schema
- Information on base tools and maintenance
- Engineering information on hardware, performance, and fault recovery

A knowledge of the IWS system, the MS DOS environment, and the Microsoft Windows environment is assumed. Other documentation is referenced if knowledge of this material is needed. A listing of all documents relevant to this user guide is provided in “Document References” on page 533

1.1 FCC Compliance

Please refer to the PC hardware manufacturer for FCC compliance. Nortel no longer certifies PCs for TOPS IWS equipment.

1.2 IWS System Architecture

IWS Release 17.1 introduces a new type of IWS position configuration. This new position configuration shall be referred to as the IP configuration, and IWS positions operating in this configuration shall be referred to as IP positions. The IWS configuration that existed prior to IWS Release 17.1 and continues to be supported shall be referred to as the TDM configuration, and IWS positions operating in this configuration shall be referred to as TDM positions. The TDM configuration supports both Token Ring and Ethernet, while the IP supports Ethernet only.

1.2.1 IWS TDM Architecture

The example IWS block diagram in Figure 1 shows a LAN connected to external databases in a combined NTDA and IWS Billing (previously NTOA) application. The same router (external gateway) connections apply to an Ethernet or Token-ring LAN. The area labeled DMS switch represents a DMS-100/200 host switch with a TOPS Message Switch (TMS). Optional equipment, such as databases, are indicated with dotted boxes and lines.

A number of IWS LANs, each equipped with up to 20 operator positions, can be connected to each TMS. Each TMS can support up to 96 operator positions. Multiple TMSs can be used in the DMS to support larger numbers of positions. For example, up to 1024 operator positions can be supported in a TOPS Operator Service Center (OSC).

There are three categories of operator positions:

- general operator position
- DMS gateway
- Remote Access Maintenance Position (RAMP)

Each operator position has a dedicated voice link to the DMS switch, and all of these positions can be used for call processing. The DMS gateway position also has a data link to the DMS switch. These positions connect to the DMS switch as shown in Figure 1. Data communication for all positions is carried by the LAN.

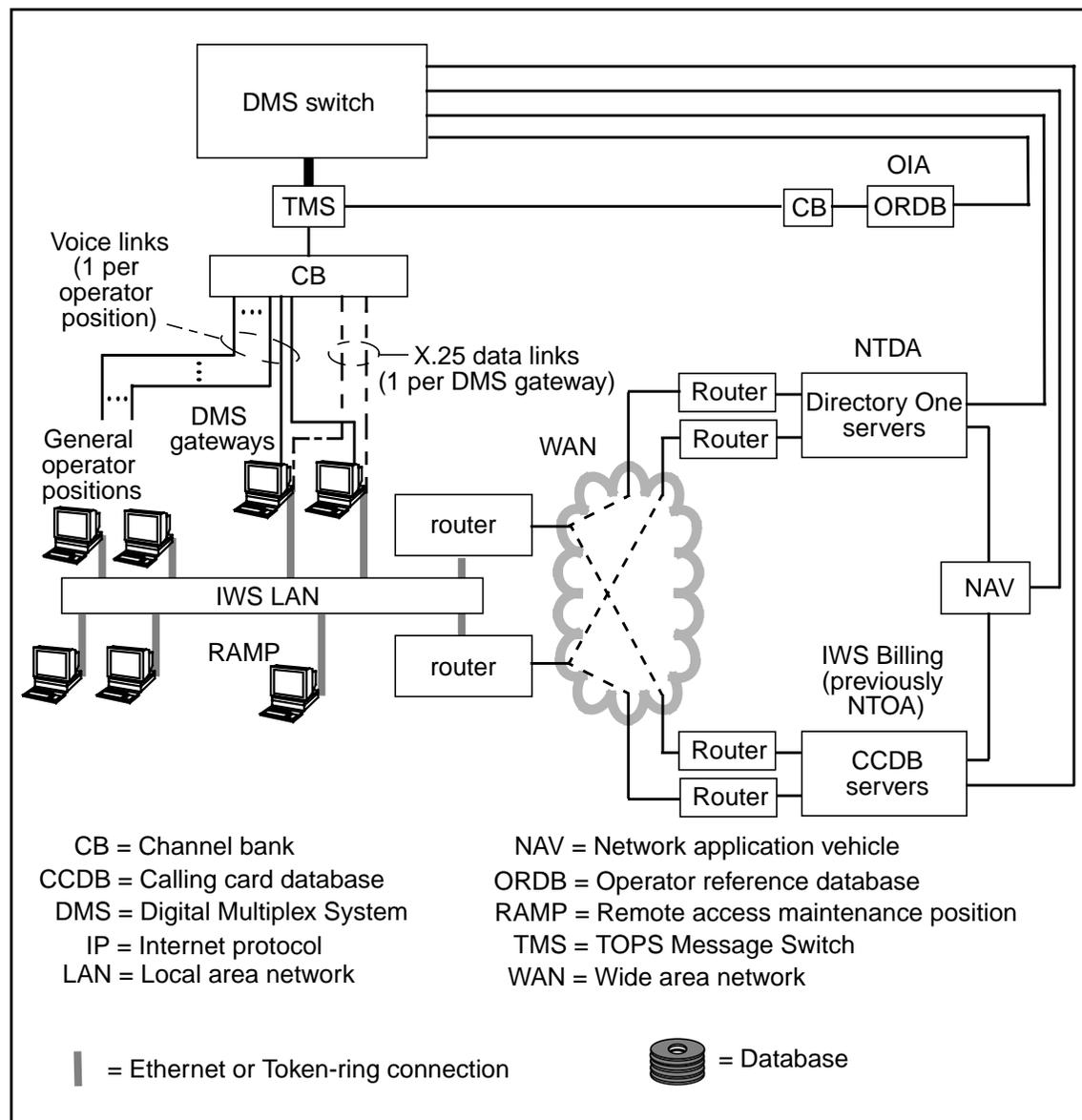


FIGURE 1. Combined NTDA (Directory One) and IWS Billing (previously NTOA)

1.2.2 IWS IP Configuration Architecture

The IP Position Configuration introduced in IWS Release 17.1 differs significantly from the existing TDM configuration. The IP Position configuration requires a different DMS TOPS peripheral, the IP XPM, which replaces the TMS (TOPS Message Switch). The TDM configuration concept of DMS Gateways no longer applies, and no messaging between IWS positions and the DMS goes over X.25 links. The DMS Switch now has IP interfaces for messaging with the IWS position.

In Figure 3, the area labeled DMS switch represents a DMS-100/200 host switch with the associated IP XPM, which includes functionality for a Voice over IP Gateway. See the *TOPS-IP Users Guide*, 297-8403-906 for details of the TOPS-IP Switch and IP XPM configurations required to support TOPS IP Positions. Throughout this document, the interface to the TOPS-IP DMS Switch and IP XPMs will be referred to as the TOPS-IP Network.

The example IWS block diagram in Figure 3 shows the IWS Ethernet LAN connected to the TOPS-IP Network through a router pair. The same routers (external gateways) also allow connectivity to external databases in a combined NTDA and IWS Billing (previously NTOA) application, as well as an OIA database.

Each operator position has a direct IP connection to the DMS (IP XPM) for exchanging IP position maintenance and OPP data messages, which are carried as IP packets. This IP connection is accessed through the local LAN. The local LAN communicates with the TOPS-IP network via router access. IP position datafill determines the UDP ports for communication, the IP Address of the DMS IP XPM that the position will communicate with, as well as the DMS position number. (Refer to Section 7.0 on page 281 for information on datafilling the MPXNET.INI and POSINFO.INI files for IP positions.) This allows for the flexibility to change a small amount of position datafill in order to have the position communicate with a different DMS switch, provided that there is IP connectivity to that switch and that the second DMS switch has all the valid datafill for that position.

Voice connections are set up dynamically on each call using the SIP (Session Initiation Protocol) for Voice Over IP. The voice conversations are carried as IP packets via the local LAN, which communicates with the TOPS-IP network (the IP XPM Voice over IP Gateway) via router access.

A Plantronics DA60 USB audio device with headset is required on each IP position for the operator to talk to the subscriber. An IP position cannot handle calls without a DA60 audio device. The DA60 has an internal DSP and a USB-to-headset adapter, and is installed by insertion into a USB port on the PC. Please refer to Figure 2, “Plantronics DA60 USB-to-headset adapter,” on page 20.



FIGURE 2. Plantronics DA60 USB-to-headset adapter

When the DA60 has been installed and is in use on an IWS IP position, the headset top (the actual headset with microphone) should only be connected/disconnected using the quick disconnect; the IWS software will be notified of the headset status. The part of the DA60 that plugs into a USB port has a DSP and is essentially the equivalent of an audio card. The DA60 should not be unplugged from the USB port and plugged back into the USB port while the IWS software is running. Please refer to “Appendix E: Plantronics headset” on page 503 for additional information.

Configuration settings for the DA60 are provisioned through datafill in the AUDIO section of the MPXINI.INI file. These settings will vary depending upon the headset model. Please refer to Section 7.1.4 “AUDIO Section” on page 283 for additional information.

There are two categories of operator positions for IP positions:

- general operator position
- Remote Access Maintenance Position (RAMP)

For additional information on these categories, please refer to “IWS IP Positions” on page 45.

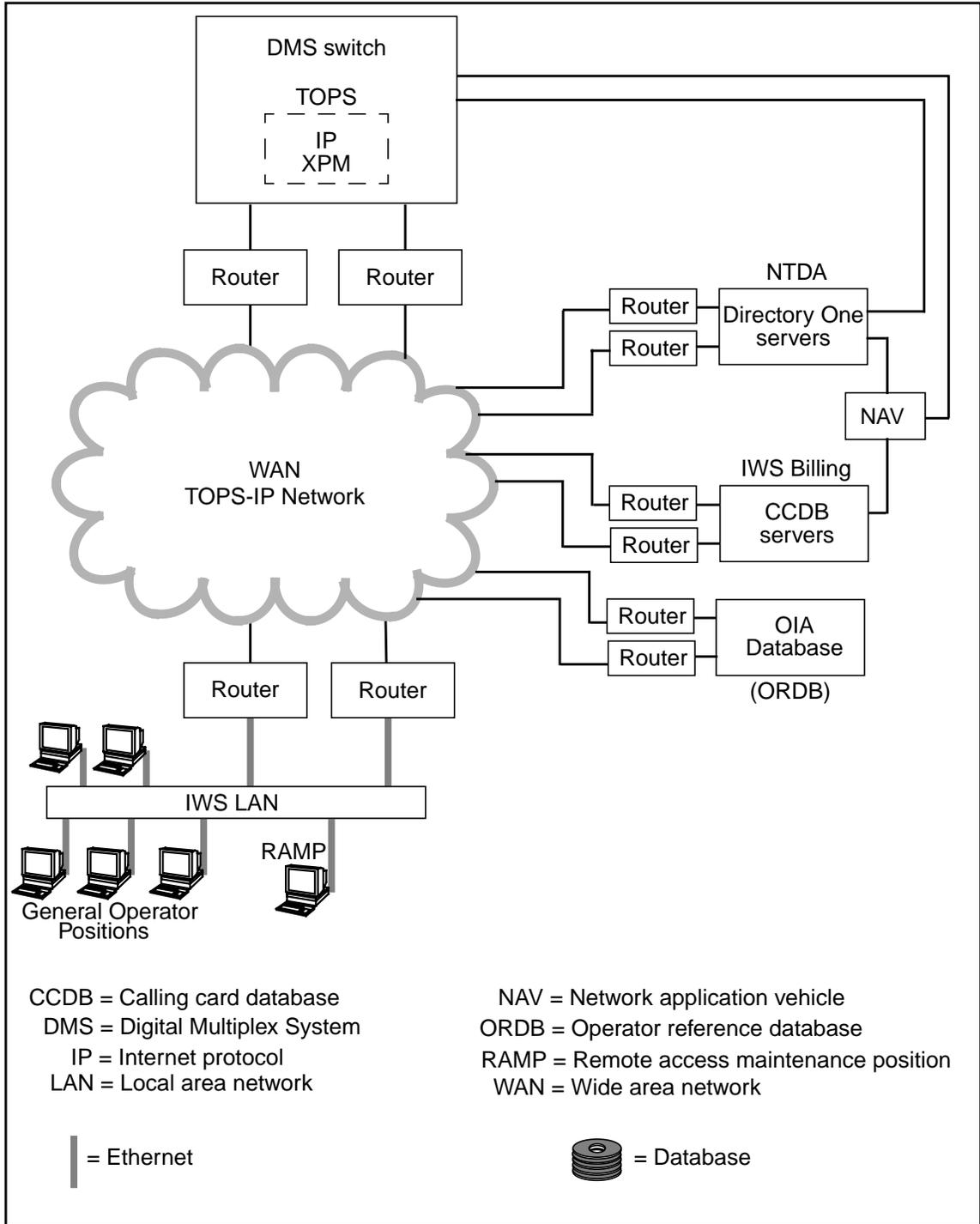


FIGURE 3. IWS IP Architecture

1.2.3 IP Position Voice over IP

Voice connections are set up dynamically on each call using the SIP (Session Initiation Protocol) for Voice Over IP. The voice conversations are carried as IP packets via the local LAN, which communicates with the TOPS-IP network (the IP XPM Voice over IP Gateway) via router access. With TDM positions, a dedicated DS0 is required per position for voice. With IP positions, the TOPS-IP network is utilized as a shared resource for both voice and data. Since voice connections are set up dynamically with IP positions, some additional call setup time is involved as compared to TDM positions. It is essential that the TOPS-IP network be engineered properly for call timing and voice quality to be optimized. See the *TOPS-IP Users Guide*, 297-8403-906 for detailed information on engineering requirements for the TOPS-IP network.

IP positions support two codecs for Voice over IP communication, G.711 and G.723. The G.711 codec does no compression and requires significantly more bandwidth than G.723, which uses compression. There are three modes of codec operation that an IP position can operate in, with appropriate DMS switch datafill. These modes are G.711 only, G.723 only, and Autocompression. The Autocompression mode provides an option where when sufficient bandwidth for the G.711 codec is not engineered within the network for the case of serious fault conditions (T1 outages between Operator Service Center and the TOPS-IP network, for example), that the IP position will sense the loss of sufficient bandwidth during the fault and automatically switch from using the G.711 codec to using the lower bandwidth G.723 codec. See the *TOPS-IP Users Guide*, 297-8403-906 for detailed information on supported codecs for IP positions in the TOPS-IP network.

In the Autocompression mode, the IP position has the capability to sense the loss of sufficient bandwidth during the fault condition and will switch to using the G.723 codec on the next call. Severe voice degradation can be expected on the existing call at the time of the fault. The IP position cannot sense the bandwidth recovery associated with recovery from the fault. Therefore, an IP position will not switchback to using the G.711 codec until after a 4 hour timer expires. The four hour recovery timer is randomized per position to actually occur over a four to four and a half hour period. If the fault is recovered much more quickly and use of the G.711 codec is desired, a means of manually resetting the position to use G.711 is provided via RAMP profiling by setting the read/write profile parameter G723 Preferred Codec to False. Additionally, re-initialization of the position will reset it to using the G.711 codec.

A Plantronics DA60 audio device/headset is required on each IP position in order for the operator to talk to the subscriber. An IP position will not be able to handle calls without a Plantronics DA60 audio device.

1.3 IWS Base Platform

The TOPS IWS base platform is defined as the hardware and software developed by Nortel Networks. This includes original-equipment manufacturer (OEM) hardware and software supplied by other vendors for the purpose of providing a platform for operator services applications. The application packages are not included within the scope of the IWS base platform.

The IWS base software operates with existing DMS-100/200 TOPS with a TOPS Message Switch (TMS). For IP positions, the IWS base software operates with existing DMS-100/200 TOPS and the associated TOPS IP DTC peripherals. It operates in cooperation with Open Position Protocol (OPP) software in the DMS switch released in BCS35 and beyond. IWS base software is described in this document. The OPP and application packages are described in other referenced documents.

1.4 IWS Platform Hardware

IWS 15.2 was the last release to be based on Windows 95, which has now reached End-of-Life status. The most recent generations of PCs are based on Intel processors and chipsets, which are not intended to support Microsoft Windows 95, and will not run IWS17.1 without modifications to drivers, BIOS, etc. Even PC's based on the Intel Pentium IV and the latest Intel chipsets (e.g. Intel 845- and 850-series chipsets) will not run Windows 95 reliably.

The solution to address this PC/OS incompatibility is to migrate the IWS to a new Operating System (OS), Microsoft Windows XP Professional. With the upgrade to the new operating system, there are also new hardware requirements:

- Intel Pentium IV 1.7 GHz or faster with Intel Chipset
- Minimum 256MB ECC RAM (preferably “fast” RAM) with support for expansion to a minimum of 512MB
- Minimum 6 GB hard disk drive
- 10/100 Ethernet NIC with RJ45 connector
- Video driver with support for 800x600 resolution and higher
- On-board “SoundBlaster compatible” sound (for “sonalert” and other uses)
- Internal CD-ROM drive, floppy disk drive, and Microsoft-compatible mouse
- For TDM positions, PCI adapter card slot capable of accepting the Nortel PCI Audio Card - full PCI card length (13.5 inches) and full PCI card height. This implies a large chassis size. It must also supply 5 volts to the card.
- For TDM positions, PCI adapter card slot capable of accepting the ARTIC X.25 adapter card (for Gateway positions) that supplies 5 volts to the card.
- For TDM positions, PCI adapter card slot capable of accepting the Token Ring adapter card.
Note: In the “worst case” configuration of a TDM Gateway position using token ring, 3 PCI card slots would be required, including one full-height, full-length slot for the audio card.
- For TDM positions, power supply capable of handling a full complement of adapter cards
- For IP positions, USB 2.0 port(s) (preferably located on both front and back of the chassis for configuration flexibility)

- TDM and IP positions using an IWS Honeywell or Cherry keyboard require a PS/2 connector on the PC.
- Meets all applicable standards for UL, FCC, etc.

1.4.1 Platform options

There are three platform options for upgrading to IWS 17.1 with Windows XP Professional.

- Purchase a new PC from Volt Delta Resources
- Upgrading an existing PC
- Purchase an off the shelf PC

Refer to the Installation Roadmap section for specific details on the upgrade requirements for each option.

1.4.1.1 Purchase a new PC from Volt Delta Resources

The IWS terminal solution is now owned by Volt Delta Resources. For future IWS needs including IWS software, Turnkey positions, IWS PCI audio cards, custom IWS keyboards, and headset jack assemblies, please contact Volt Delta Resources. IWS customers should establish a purchasing relationship directly with Volt Delta Resources. Please contact Christine Whites, Volt Delta IWS Product Manager, at (585) 654-2387 for more information.

Only Volt Delta Resources is authorized to sell IWS PCI audio cards, custom IWS keyboards, headset jack assemblies, and turnkey IWS positions. Therefore, **Nortel strongly recommends purchasing hardware through Volt Delta Resources**. Although it is possible to buy PCs from another vendor and configure them yourself, you must expect a significant, time-consuming, multi-vendor integration effort to do so.

1.4.1.2 Upgrading an existing PC

Many existing IWS PCs can be used as-is, or with hardware upgrade, to be used with IWS 17.1 and Windows XP. The amount of work involved in bringing them in line with the hardware requirements depend on the type of PC:

- Intel 350 MHz or 600 MHz (Juneaus)
 - Requires a new Internal CD-ROM
 - Requires additional memory
- Dell GX150s

Intel 166 MHz (Rhinstones) **cannot** be upgraded to run IWS 17.1.

Note: Volt Delta Resources provides an upgrade kit for each type of Juneau that includes all necessary components to meet the hardware requirements.

The personal computers (PCs) shown in Figure 4 for identification and listed in Table 1 support TOPS IWS 17.1 software, but only with the specified hardware upgrades.

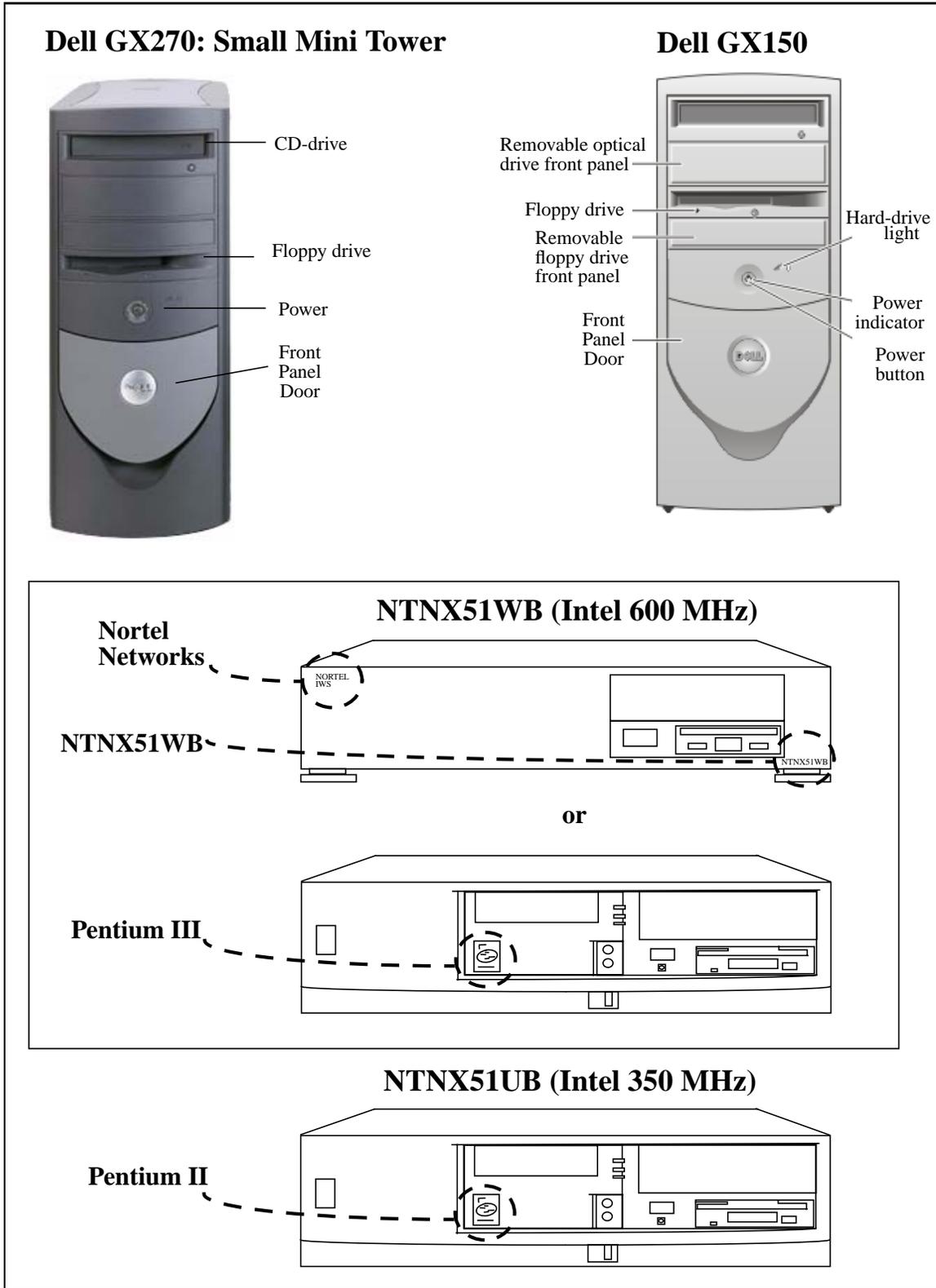


FIGURE 4. IWS Base Units for IWS Release 17.1

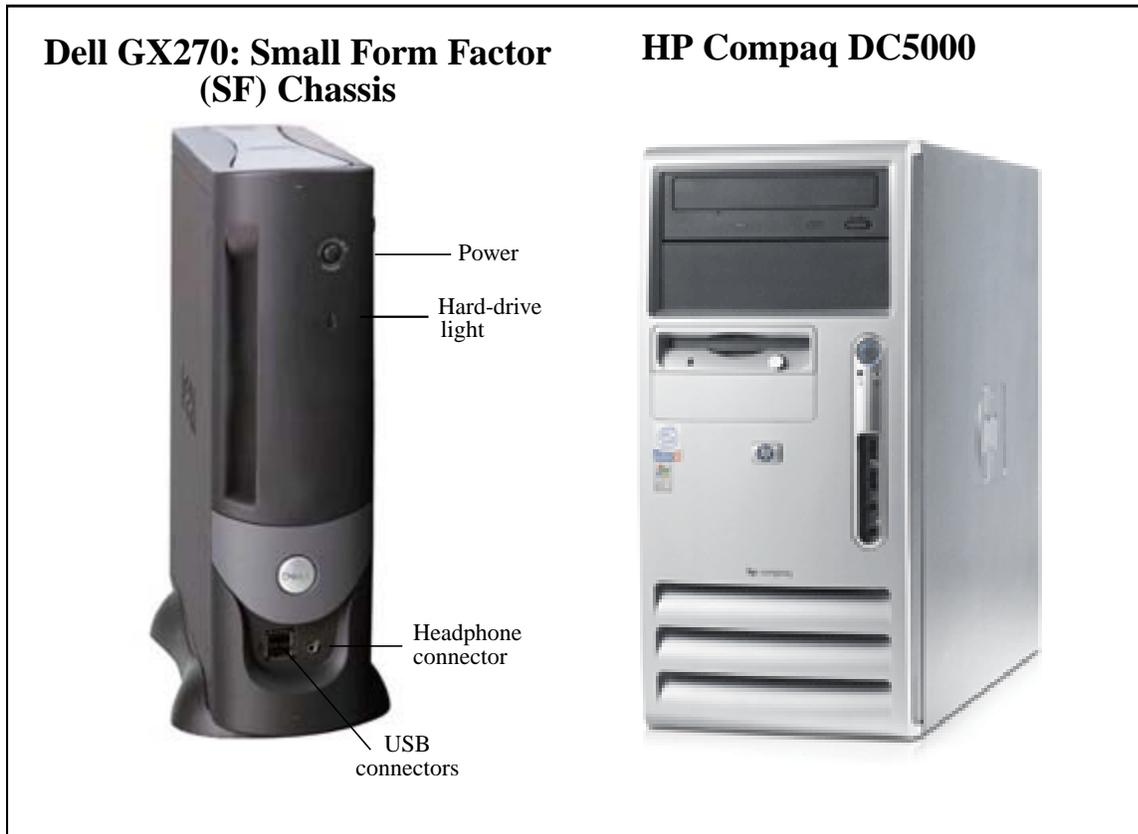


FIGURE 5. IWS Base Units for IWS Release 17.1 - IP only

1.4.1.3 Purchase an off-the-shelf PC

Customers may purchase an off-the-shelf PC that meets the hardware requirements. An off-the-shelf copy of Windows XP Professional may also be purchased. IWS 17.1 software is available through Volt Delta Resources. It is the customer's responsibility to install and set up their IWS workstation.

1.4.2 IWS Hardware Platform and Software Release Compatibility Guide

The following tables provide information on the hardware platforms that are compatible with each supported IWS software release. Table 1 identifies the *minimum* acceptable Nortel-provided IWS hardware supported with each software release when running Nortel-provided IWS applications. Table 2 identifies the *recommended* configurations.

Note: These tables also appear in the "IWS 17.1 Hardware Compatibility" matrix, the "Minimum Supported Hardware Matrix," and the "Recommended Hardware Matrix" in the My Nortel Networks customer website at www.nortelnetworks.com. Login under the Communities heading. Select the "IWS User" community on the left side of your screen, and select "File Exchange." The matrix is located under "Additional Resources" in a folder labeled "IWS Hardware Compatibility." Click on the file to view it, or follow the instructions to download the file to your desktop.

The minimum configuration refers to functionality and does not imply that real-time performance will be considered acceptable. Minimum configurations provide sufficient processor speed, memory, and so forth, to permit Nortel Networks IWS applications to function properly.

Some degree of real-time “erosion” is to be expected when upgrading switch and IWS software (*especially when upgrading from 16-bit to 32-bit software in IWS13*). Therefore, each customer must assess whether the PC platform provides an acceptable performance level for operator and gateway positions, given their mix of applications and their productivity expectations. If a given PC platform is not deemed by the customer to provide the required performance at operator and gateway positions, an upgrade to a more powerful PC platform will be required, even if that platform is beyond the minimum baseline shown in Table 1.

Pos Type:	Operator Positions (TDM/IP)				
	Intel		Dell		HP Compaq
Manufacturer:	NTNX51UB	NTNX51WB	N/A	N/A	N/A
Nortel Part Number:					
Model:	Juneau	Juneau	GX150	GX270	DC5000
RAM:	256 MB	256 MB	256 MB	256 MB	504 MB
Hard Drive:	5.1 GB***	10.1 or 6 GB***	18.6 GB	6 GB	37.2 GB
CPU:	350 MHz	600 MHz	933 MHz or 1.0 GHz P3	2.60 GHz P4	2.80 GHz
IWS17.1	Y (TDM only)	U*	Y	Y	Y(IP only)
	Retirement Date (Unsupported as of)		TOPS Switch Load Compatibility		
IWS15.2	TBD		TOPS12 and higher		
IWS15.2	TBD		SN04 - SN06** (TOPS Succession load)		
IWS17.1	TBD		TOPS 14 and higher		
IWS17.1	TBD		SN04 - SN07**TDM only SN04 - SN08** IP only (TOPS Succession load)		

U* Supported with memory upgrade.

** IWS must be upgraded to IWS15.2 prior to loading Succession TOPS load (SN04 or higher) into TOPS Host or OC Remote.

*** See section 1.4.2.1 to verify the hard drive size.

TABLE 1. IWS Hardware and Software Compatibility: Minimum Supported Configuration

Table 2 identifies the recommended Nortel Networks-provided IWS hardware supported with each software release when running Nortel-provided IWS applications.

Nortel Networks considers the recommended configuration to provide acceptable memory and real-time performance. Since there are no real-time standards for operator positions, however, each customer must assess whether the platform provides an acceptable performance level for operator and gateway positions, given their mix of applications and their expectations. If a given PC platform is not deemed by the customer to provide the required performance at operator and gateway positions, an upgrade to a more powerful PC platform will be required.

Note: When using memory-intensive or real-time intensive third-party applications, observe the recommended configurations in Table 2.

Pos Type:	Operator Positions (TDM/IP)
RAM:	256 MB
Hard Drive:	40 GB
CPU:	2.6 GHz P4
USB (IP Only):	2.0

TABLE 2. IWS Hardware and Software Compatibility: Recommended Configurations

1.4.2.1 Hard drive verification

Most recent hard drives will contain ample hard drive space. When upgrading from an existing Juneau with Windows 95, the drive may have been partitioned to a size of 2 GB. To determine the **actual** physical space available, use the FDISK program.

CAUTION: FDISK is a very powerful program and must be used with care. FDISK can delete the entire contents of a disk drive quite easily. If you have any doubts or misgivings about the process, do not attempt it.

The program FDISK is found on the "C:" drive in the directory "\DOS". To run the program, it is best to restart the computer in MS-DOS mode through the "Shut Down" option on the "Start" button.

Type "FDISK" and press return.

There may be a warning paragraph about enabling large disk support.

If so, select N for No to get to the next screen.

The following menu will appear.

=====

FDISK Options

Current fixed drive: 1

Choose from the following:

1. Create DOS partition or Logical DOS Drive
2. Set active partition
3. Delete Partition or Logical DOS Drive
4. Display partition information

Enter choice: []

Press ESC to exit FDISK

=====

Select option 4 "Display Partition information".

The resulting screen will show the sizes of the existing partition(s) and also report the total disk space in Mbytes. If the total size meets or exceeds the criteria in Table 1, then proceed with the installation. Otherwise, a new hard drive will be required.

Select the Esc key to return to the FDISK menu and use the Esc key again to quit FDISK.

1.5 Adding an internal CD-ROM

All Juneaus (NTNX51UB and NTNX51WB) will require installing an internal CD-ROM. The installation instructions for adding an internal CD-ROM depends upon the type and model of the hardware. Please refer to the manufacturer's installation instructions.

In addition, the following settings or actions are recommended for PCs previously sold through Nortel Networks:

	Is a new IDE cable required? ^a	Master or Slave setting for the CD-ROM	Does the wire wrap require cutting
NTNX51UB (350 MHz)	Y	Slave	N
NTNX51WB (600 MHz)	Y	Slave	N
NTNX51WB (600 MHz) Pentium III	N	Master	Y

Note: If you are not sure which type of PC you have, please refer to the diagram on page 25.

a. The existing IDE cable is not long enough to reach the new CD-ROM drive.

TABLE 3. CD-ROM installation suggestions

The upgrade kit available through Volt Delta Resources includes the IDE cable mentioned above. It also contains all hardware needed to upgrading existing IWS Juneaus to meet the new IWS hardware requirements.

1.6 Adding memory

Juneaus (NTNX51UB and NTNX51WB) will require additional memory to meet the hardware requirements. This is also included in the upgrade kit from Volt Delta Resources. The installation instructions for adding memory to a PC depends upon the type and model of the hardware and the memory required. Please refer to the manufacturer's installation instructions.

1.7 IWS Adapters

Except for special delivery arrangements, IWS adapters are installed in an IWS base unit prior to its delivery to an end user. Also, the driver software needed for a PCI installed adapter card is automatically loaded as part of the IWS install procedure for the Windows XP Professional operating system (see Section 2.1 on page 49). Drivers for ISA adapter cards must be installed manually. Even though adapter cards and their associated driver software have already been installed and set up, it is important to review this section to note the types of adapter cards present in a particular IWS position.

There are three types of IWS adapters:

- LAN adapter
- audio adapter
- X.25 adapter

IWS adapter cards support the Peripheral Component Interface (PCI) and Industry Standard Architecture (ISA). The ISA bus interface is also referred to as an advanced technology (AT) bus interface.

Note: Windows XP Professional does not automatically recognize the ISA hardware. For manual configuration instructions, please refer to “Appendix C: Audio Card Driver installation” on page 445 or “Appendix B: DMS Gateway Driver installation” on page 395 as needed.

Adapter configurations for each IWS position type are listed in Table 4. The card slot locations are listed in Table 5.

IWS position	Adapters
General position	LAN card (Token-ring or Ethernet) Audio card (optional)
RAMP	LAN card (Token-ring or Ethernet) Audio card (optional)
DMS gateway	LAN card (Token-ring or Ethernet) Audio card (optional) ARTIC* X.25 card
* The ARTIC card is often referred to as the “RTIC” card.	

TABLE 4. Use of Adapter Cards with IWS Positions

Adapter type	Type of PC			
	NTNX51WB Intel 600 MHz	NTNX51UB Intel 350 MHz	Dell GX150	Dell GX270 (Mini Tower Only)
Ethernet	Motherboard	Motherboard	Motherboard	Motherboard
Token-ring	Slot 1	Slot 1	Slot 4	Slot 4
Audio	Slot 2 (ISA/ PCI)	Slot 2 (ISA/ PCI)	Slot 3	Slot 3
ARTIC	Slot 3	Slot 3	Slot 5	Slot 5

TABLE 5. Card Slot Locations for IWS Adapters

1.7.1 Ethernet Adapters (TDM and IP)

All supported PC platforms come with built-in Ethernet support on the motherboards, thus separate Ethernet cards are not required.

1.7.2 Token-ring Adapter (TDM only)

- **IBM card:** The IBM 34L5001 is used with the Dell GX150 PC.
- **Madge card:** The earlier PCI Madge 51-50 card was used with the NTNX51WB (Intel 600 MHz) and NTNX51UB (Intel 350 MHz) PCs.
- **Olicom card:** The earlier Olicom OC-3137 PCI/II 16/4 card was used with the NTNX51WB (Intel 600 MHz) and NTNX51UB (Intel 350 MHz) PCs.

1.7.3 Audio Adapter

IWS audio adapters include Nortel Audio cards, which apply to TDM positions only, and Plantronics DA60 Audio Device/Headset, which applies to IP positions.

1.7.3.1 TDM Positions

- **PCI audio card:** The current IWS audio card is the NTNX52CC card. This PCI-type card is used with all supported position types.

Note 1: The NTNX52CC PCI audio card has four ports and two ground screws on the back. The first port is labeled J1 and is used for the voice connection to the DMS switch. At this time port J4 is not used. Ports J2 and J3 can be used for operator headset connections. These two headset ports are made to receive RJ45 (6-wire) connectors as opposed to type RJ11 (4-wire) connectors. When changing out older PCs with newer PCs (such as replacing HP XM4 PCs with Intel 600 MHz PCs), the associated headset units might be equipped with the RJ11 connectors. It is then necessary to replace older headset units with headsets that are fitted with an RJ45 connectors or RJ11-to-RJ45 converters.

Note also that some RJ45 connectors have a grooved surface and some have a smooth surface. To better seat a smooth surfaced connector into an audio card port, spread the connector's clip until it securely snaps into the port.

Note 2: The PCI audio card requires 5 volts to work properly. Many off-the-shelf PCs offer PCI voltage levels of 3.3 volts, which is insufficient to run the IWS audio card. If using a PC not qualified by Nortel Networks, please verify the voltage level.

- **ISA audio card:** An earlier ISA card (the NTN52BC) was used with IWS position types NTN51UB (Intel 350MHz).

1.7.3.2 IP Positions

- **Plantronics DA60 Audio Device:** The supported platforms include NTN51WB (Intel 600MHz), DELL GX150, and DELL GX270. This device plugs into a USB port.

1.7.4 ARTIC (X.25) Adapter (TDM only)

The current X.25 card is the Radisys PCI/ISA-combo ARTIC adapter. It is a Half-height PCI slot adapter. This adapter is based on an X.25 Interface Co-Processor/2, Intel (1) 80186 with 512KB or 1MB (switchable with dip switch), V.35 and RS-422A up to 64kbps full-duplex Cable option V.35. This adapter is used for DMS gateway positions with an RS-422 communication interface to the DMS switch.

Note 1: For an RS-422 application, cable NTN36SD is used to connect the ARTIC card to an MDF, and cable NTN36SK is used between the MDF and a T1 or E1 channel bank.

Note 2: The Radisys ARTIC card requires 5 volts to work properly. Many off-the-shelf PCs offer PCI voltage levels of 3.3 volts, which is insufficient to run the ARTIC card. If using a PC not qualified by Nortel Networks, please verify the voltage level.

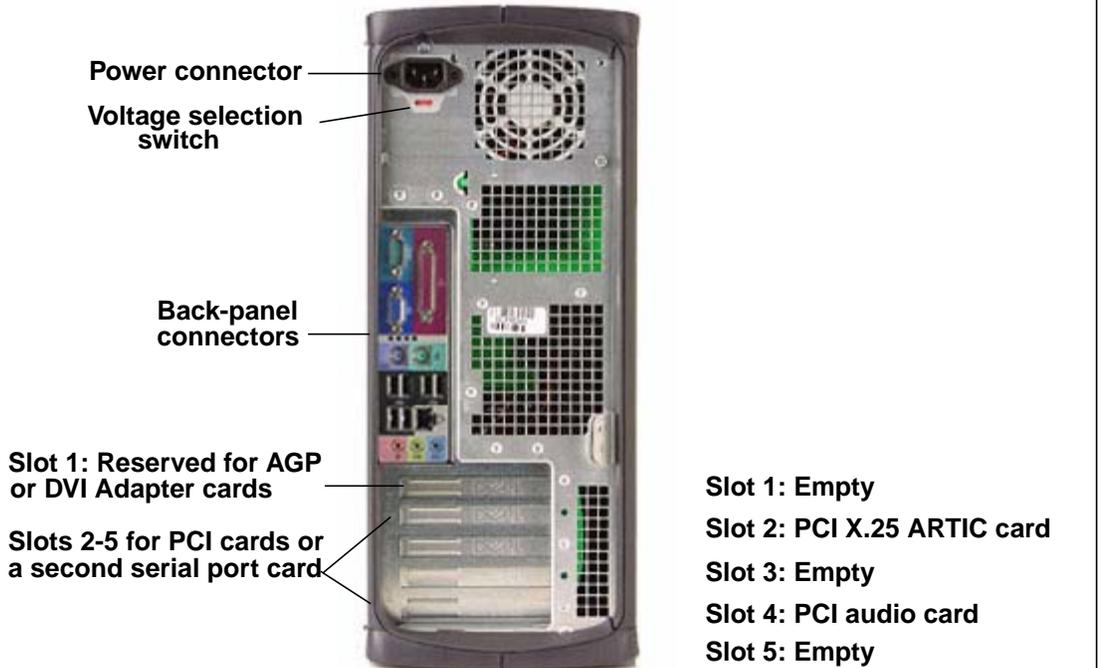
An ISA-only ARTIC adapter card was also used for a short time. This adapter is based on an X.25 Interface Co-Processor/2, Intel (1) 80186 with 512KB, V.35 and RS-422A up to 64kbps full-duplex Cable option V.35. This adapter is MD (manufacture discontinued).

The IBM ARTIC-X Adapter Card single port card (CPC A0619552) is no longer used.

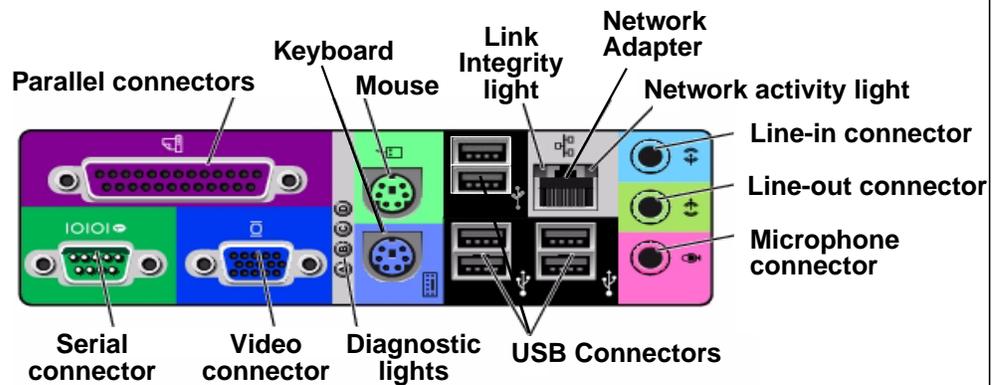
1.7.5 Adapter Slot Locations

Figure 6, Figure 8, Figure 9, and Figure 10 show the locations of the adapter slots on each hardware platform.

Dell GX270 -Small Mini Tower (SMT) Chassis



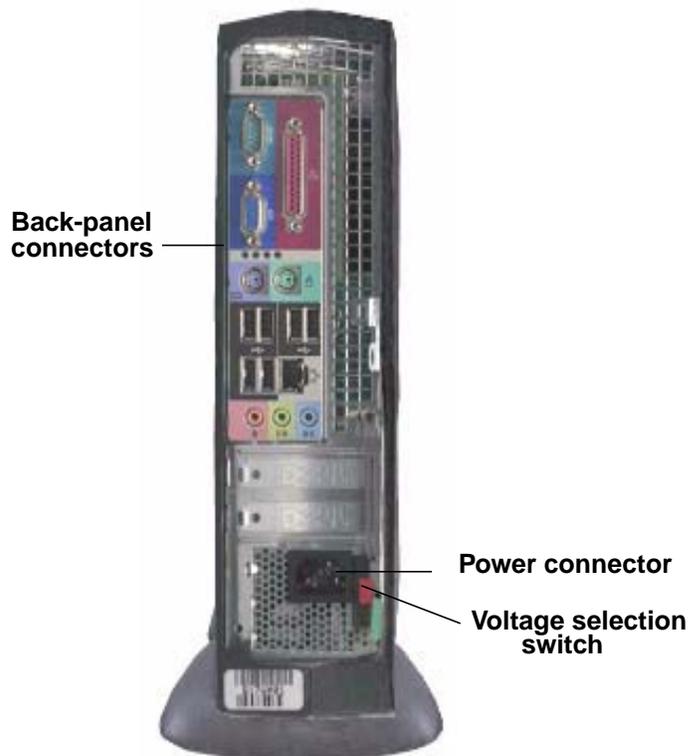
Back-panel connectors:



Note: For IP Positions, the PCI audio card, PCI Token-ring card, and the PCI ARTIC card are not used. TDM positions will continue to use these cards. Please refer to Figure 7, Dell GX150, for diagrams of those cards.

FIGURE 6. Adapter Card Placement for the Dell GX270 SMT Chassis

Dell GX270 -Small Form Factor (SF) Chassis IP Only



Back-panel connectors:

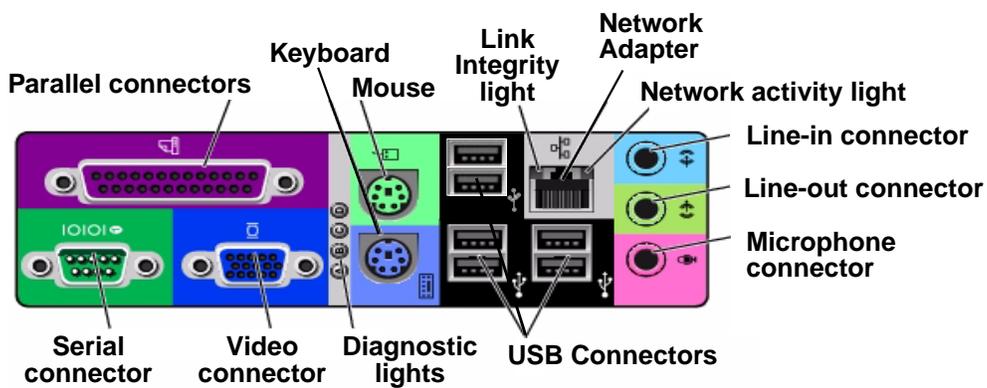


FIGURE 7. Adapter Card Placement for the Dell GX270 SF Chassis

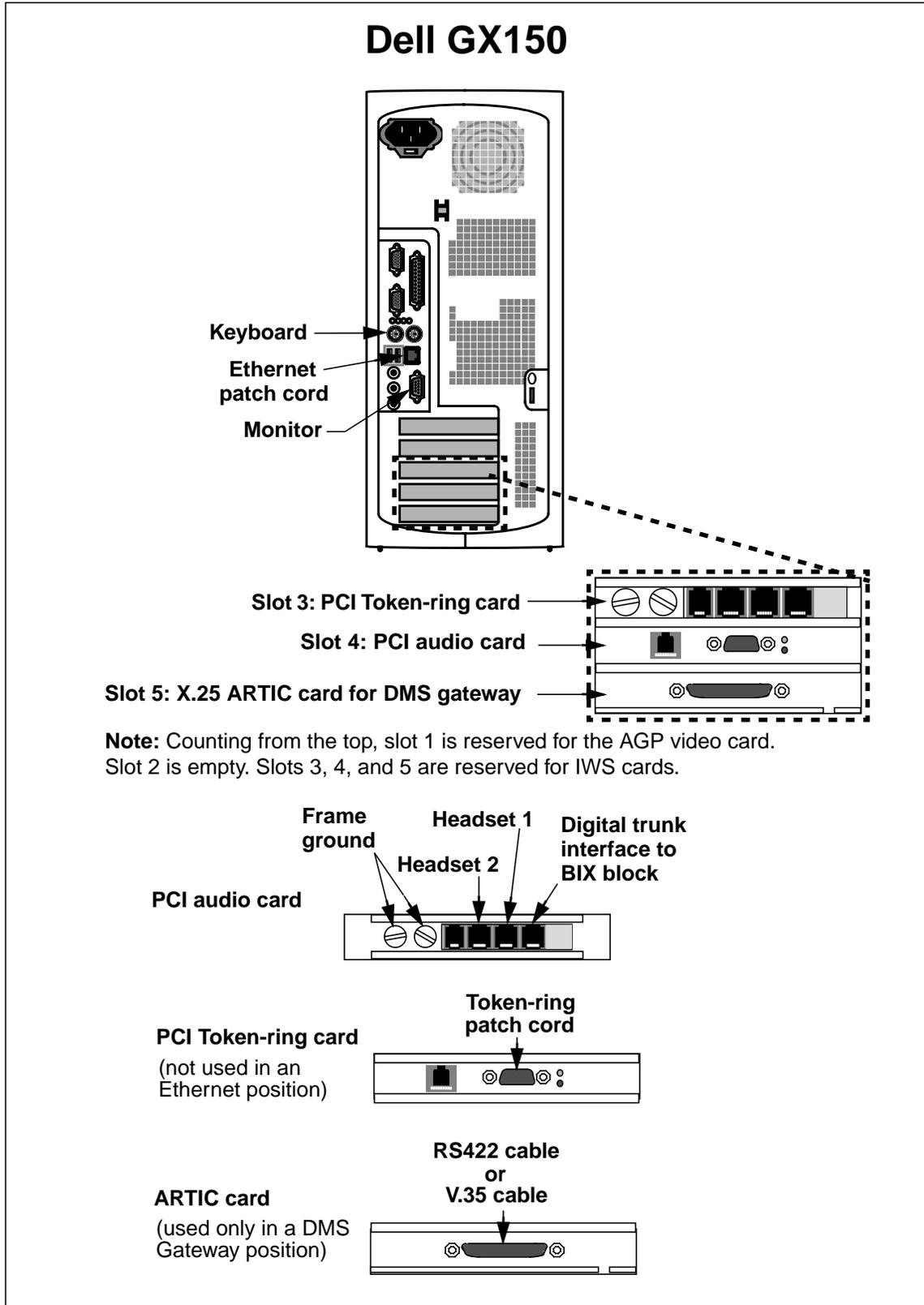


FIGURE 8. Adapter Card Placement for the Dell Pentium III GX150

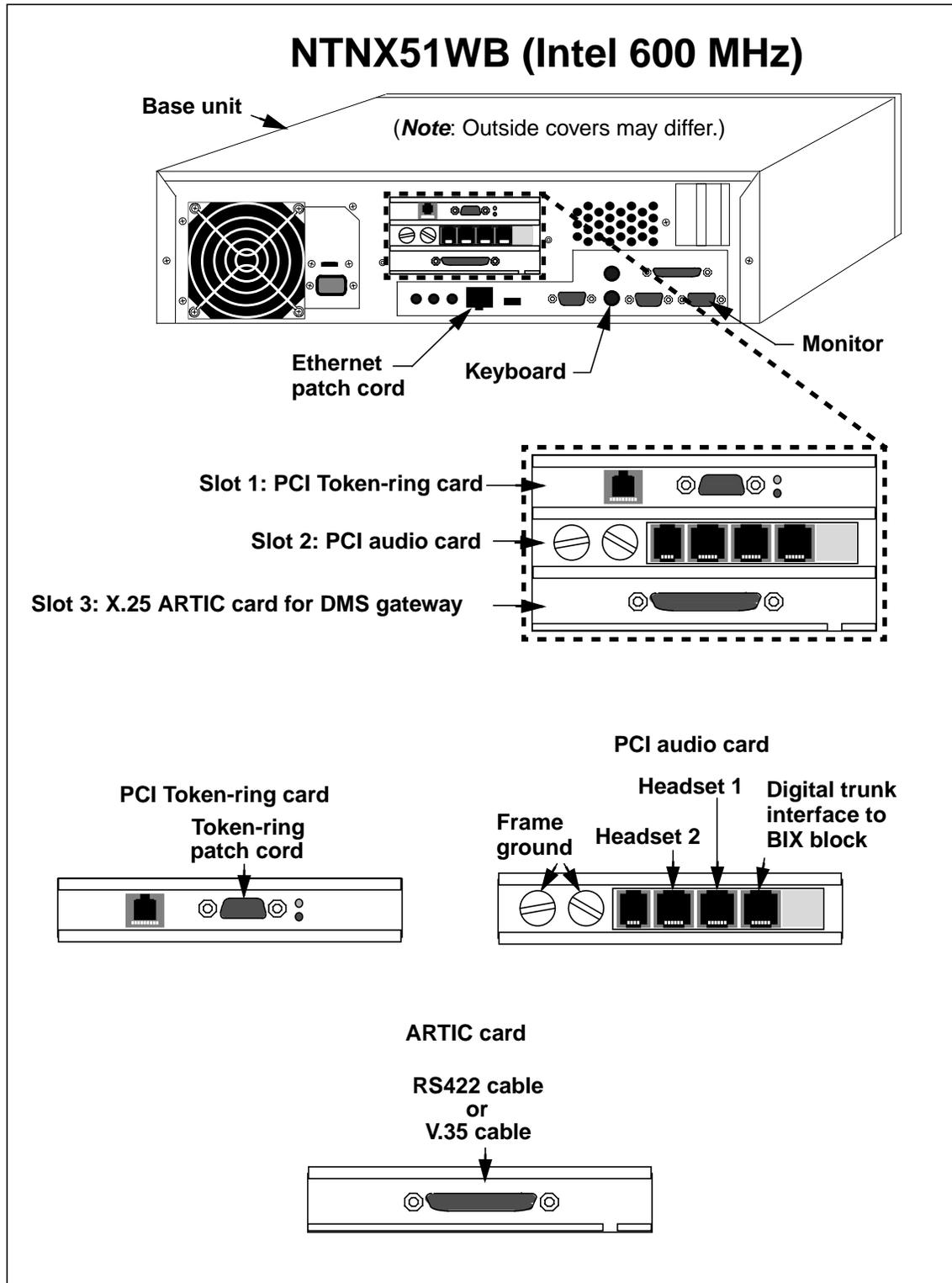


FIGURE 9. Adapter Card Placement for the NTNX51WB (Intel 600 MHz)

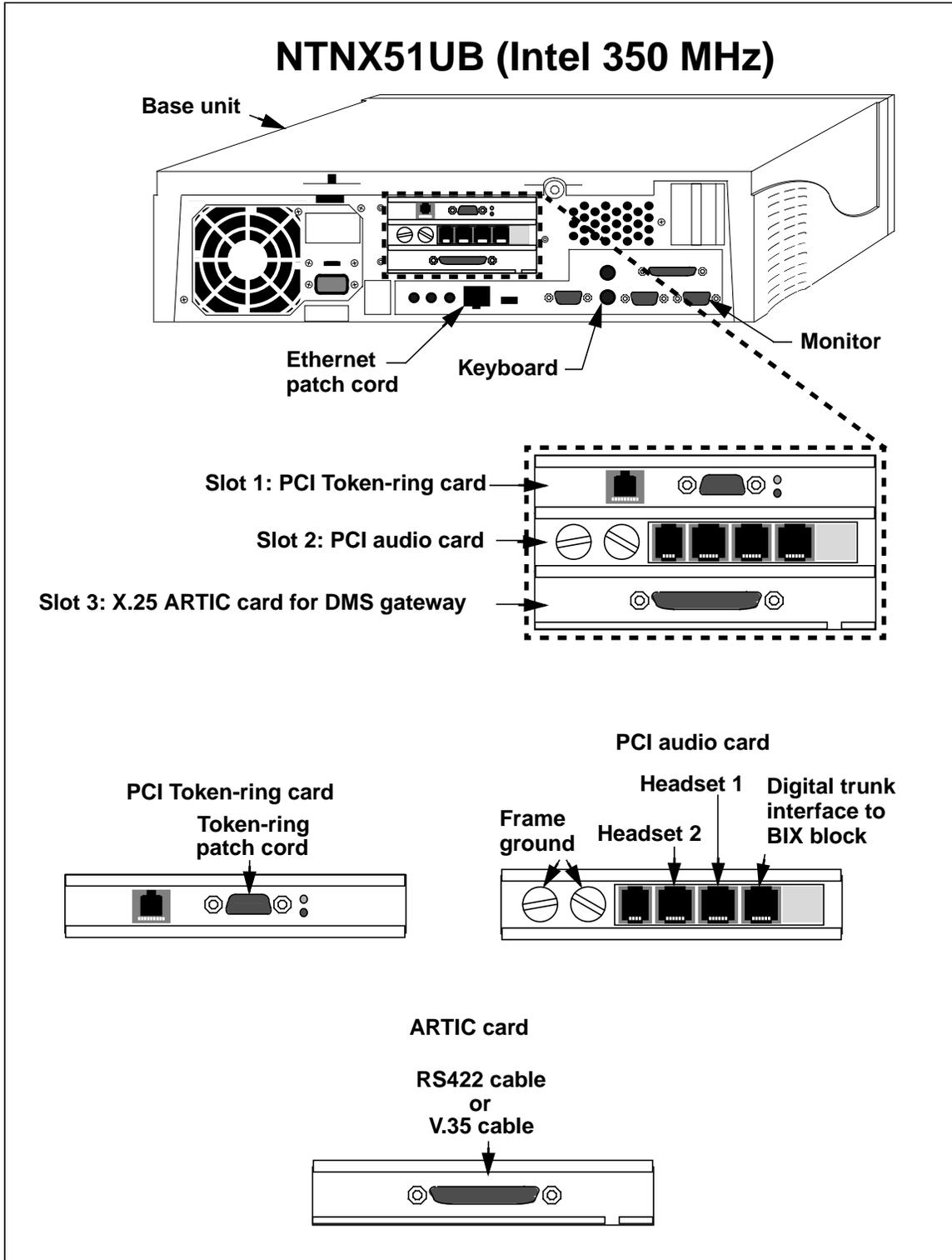


FIGURE 10. Adapter Card Placement for the NTN51UB (Intel 350 MHz)

1.7.6 Adapter Settings

Except for special delivery arrangements, IWS adapters are installed in an IWS base unit prior to its delivery to an end user. Also, the driver software needed for an installed adapter card is automatically loaded as part of the IWS install procedure for the Windows XP Professional operating system (see Section 2.1 on page 49). If a situation arises where an end-user has to install and set up adapter cards in an IWS position, use the following general steps.

1. Refer to the manual supplied with the PC for specific information on removing the PC cover and any other information on adapter card installation.
2. Set the switch settings on each adapter card and insert the card into the PC. Recommended settings for various adapter cards are shown in Table 6. Use the manufacturer's documentation to set desired option settings.

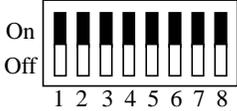
Adapter card	Switch settings
NT Digital Audio Card, PCI Bus (NTNX52CC) (CPC B0244989)	Plug and play (no adjustments or settings required)
NT Digital Audio Card, ISA Bus (NTNX52BC) (CPC B0238835)	Switch Settings: Set all settings (1 thru 8) to On. <div style="text-align: center; margin-top: 10px;">  </div>
Madge 51-50 Token-Ring Card, PCI Bus (CPC A0619552)	Plug and play (no adjustments or settings required)
Olicom OC-3137 PCI/II Token-Ring Adapter Card	Plug and play (no adjustments or settings required) Ring Speed: 4 Mbps
IBM 34L5001 PCI Token Ring Adapter Card	Plug and play (no adjustments or settings required)
PCI/ISA Combo ARTIC Adapter Card Model # 71G6458 (PCI Blade)	Switch settings: Ignored in PCI mode. For Jumpers. For J6, set switch to 512K (pins 1 and 2) For J4, set switch to Above 1 Meg

TABLE 6. Adapter Card Switch Settings

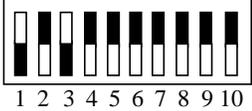
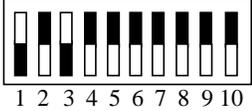
<p>PCI/ISA Combo ARTIC Adapter Card Model # 71G6458 (ISA Blade)</p>	<p>Adapter I/O Address 02A0h Interrupt Level (IRQ) 11 Memory address range Shared RAM C8000-C9FFFh Switch Settings: Two switch settings, S1 and S3 For S1 and S3, set switch OPEN</p> <p>Open </p> <p>For Jumpers. For J6, set switch to 512K (pins 1 and 2) For J4, set switch to Below 1 Meg</p>
<p>ISA only ARTIC Adapter Card Model # 71G6459</p> <p>The status of this card is MD.</p>	<p>Adapter I/O Address 02A0h Interrupt Level (IRQ) 11 Memory address range Shared RAM C8000-C9FFFh Switch Settings: Two switch settings, S1 and S3 For S1 and S3, set switch OPEN</p> <p>Open </p>

TABLE 6. Adapter Card Switch Settings

1.8 IWS Keyboard Layout

A special IWS keyboard is supplied by Nortel Networks. The functionality of this IWS keyboard is determined by a file called XKBOARD.TBL. In this file, IWS-specific keys are assigned to provide input and to invoke selections from various windows and menus. These include the Functions, Services, OGT, Applications, and Trouble menus. Table XKBOARD can also be datafilled for use with a standard 101-key DOS keyboard or a 122-key, host-connected, compatible DOS keyboard, supplied by the user (see Section 6.4.15 “Table XKBOARD”).

Figure 11 shows the layout of the IWS keyboard when used in a non-IWS context. Figure 12 shows important keys that are often referred to during installation.

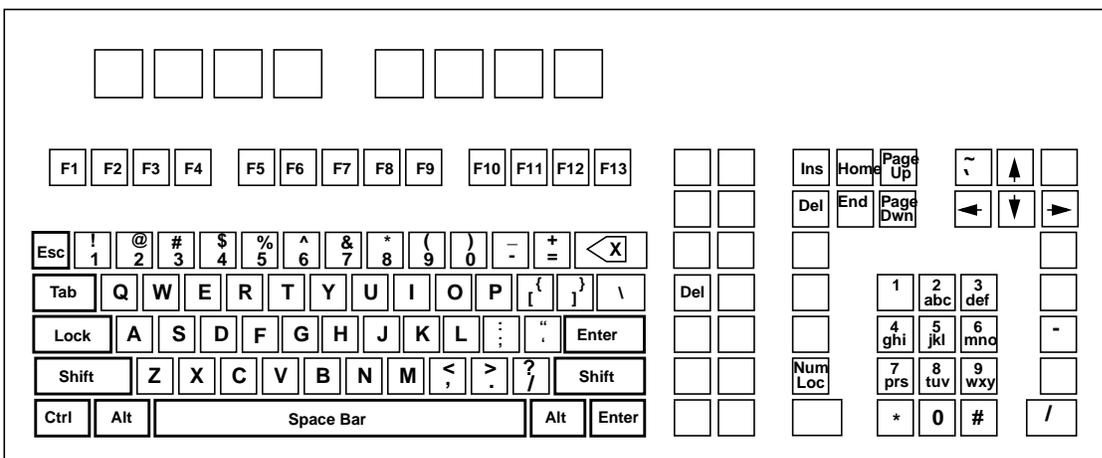


FIGURE 11. Non-IWS Keyboard Layout

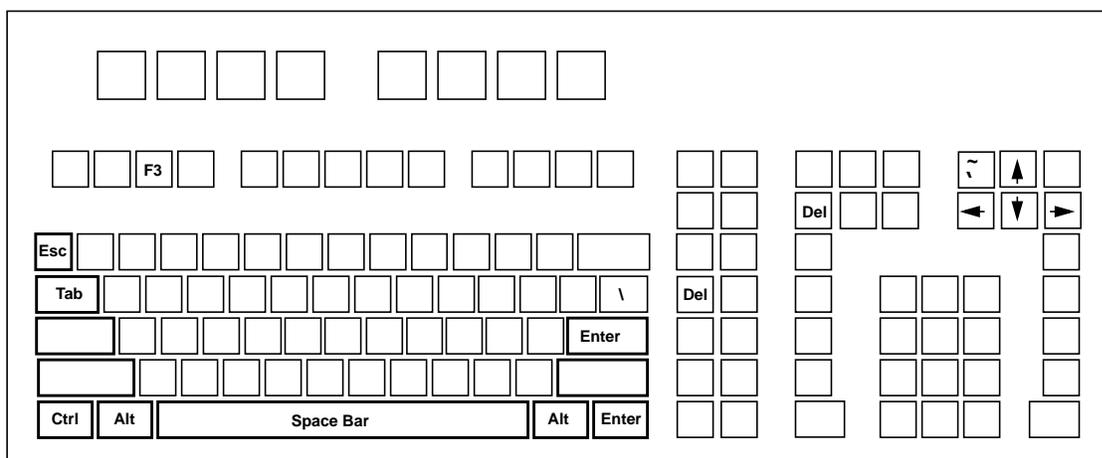


FIGURE 12. Important Keys Used during Installation

1.9 IWS Platform Software

IWS release 17.1 software can be used only with the Windows XP Professional operating system. Although procedures are provided in this document for installing the Windows software provided by Nortel Networks, it is assumed the user of this installation document has a basic knowledge of personal computers (PCs) and the Microsoft Windows system.

The following equipment and documentation are used for an initial installation of Windows XP Professional:

- Internal CD-ROM drive, new (OEM) Windows XP Professional CD, and manuals

The following protocols are contained in the Windows XP Professional software.

- Transmission Control Protocol/Internet Protocol (TCP/IP)
- User Datagram Protocol (UDP)
- File Transfer Protocol (FTP)

The TOPS IWS base platform software is a multipurpose platform for providing various operator services and applications within the context of the DMS TOPS switch. The IWS base software is developed to provide a platform enabling the addition of operator assistance, directory assistance, and an open information access (OIA) application, as well as other optional user-defined applications. The Applications section below defines the terms for registering and non-registering applications.

The following equipment and documentation are used to install IWS 17.1 software:

- IWS CD and this document
Your version of the IWS CD will be customized to include the Base and Billing application software and, in addition, only the IWS applications you have purchased. The possible applications include OIA, NTDA, and EISA.
- *TOPS IWS Base HMI Application Guide*
- *TOPS IWS RAMP and Provisioning User's Guide*

Note: Customers are shipped two copies of IWS software and two copies of IWS documentation. To order more copies, contact your regional Nortel Networks representative.

1.9.1 IWS Software Patch Process

The IWS software patch process is handled separately from the IWS base and application software. Section 4.0 “Installing and Removing IWS Patches” provides patching installation instructions.

In addition, each patch is shipped with installation documentation specific to that patch. For more information, see the Nortel Networks customer website at **www.nortelnetworks.com**. Click on “Downloads” under the “Support” heading. Enter “IWS” in the Product Selection box on the right side of your screen. Either press the Enter key or click on the “Go” button. After the system has returned the items available for download, scroll down to the Patches section. Click on the patch you need. A Software

Detail Information window will open. The patch may be downloaded by clicking on the File Download link or by right clicking on it and using the “Save target as...” option.

1.9.2 Applications

An application in the IWS environment refers to an application programmer’s interface (API)-compliant executable task running on the PC.

When an IWS position is upgraded from a pre-IWS 17.1 load, it is necessary to recompile all IWS API applications with a 32-bit compiler. Install the IWS 17.1 API/SDK and use the APPDEF tool to redefine third-party applications so that the applications can be used with IWS 17.1 and later IWS releases. Refer to the *TOPS IWS Software Development Kit Tools User’s Guide*, NIS Q237-1. Also, see the Nortel Networks customer website at **www.nortelnetworks.com**. Click on “Downloads” under the “Support” heading. Enter “IWS” in the Product Selection box on the right side of your screen. Either press the Enter key or click on the “Go” button. After the system has returned the items available for download, view the list in the Images, Loads and Releases section for the application required.

There are three types of IWS applications within the system.

The first type of application is one that is listed in the MPXINI.INI file as a non-registering application. It is started by the MPXBASE application during position initialization. This type of application does not provide any DMS TOPS services and is not used for any call-processing purposes. Examples of this type of application are MPXMTCGW, RAMP, and the WX25 applications.

The second type of application is one that is listed in the MPXINI.INI file as a registering application. It does not provide any DMS TOPS services. This type of application is also started by the MPXBASE application, but it also goes through the application registration process with MPXBASE. MPXBASE can then communicate with the application about logon and other system events, such as MTC, logout, and call arrivals. An example of this type of application is the OIA application.

The third type of application is listed in the MPXINI.INI file as a registering application and does provide DMS TOPS services. A service refers to DMS TOPS services that are entered at the IWS position XSERVS datafill table and also in the DMS switch datafill. These services are functions that an operator can provide to a subscriber. The operating company can bill the subscriber for its use. The application is started by the MPXBASE application and then goes through the application registration process. Examples of this type of service are the NTDA and IWS Billing (previously NTOA) applications.

This document is devoted exclusively to describing the IWS base platform on which these types of applications run. The document does not describe any application.

1.9.3 Backwards Compatibility

A registering or non-registering application that is built upon previous versions of the IWS base software may not function correctly on this version because of possible interface changes. To ensure application compatibility, IWS applications should be re-compiled

with the latest versions of the IWS base software API and HMI API. See your application vendor for any possible software upgrades or for other information concerning application compatibility with this version of the IWS base software.

1.9.4 Software Development

The IWS base software relies upon existing TOPS software and TOPS OPP features. The OPP is an open protocol for communication with the DMS switch. TOPS OPP is required for IWS, and it is a subset of the OPP features.

The IWS base software functionality contained in this document is dependent upon the software load in the DMS switch. TOPS IWS release 17.1 is compatible with DMS-200 loads. The IWS base software functionality contained in this document is dependent upon the software load in the DMS switch. TOPS IWS release 17.1 is compatible with the DMS-200 loads TOPS14, TOPS15, and TOPS17, and the Succession loads SN04, SN05, and SN06. All positions within a LAN must contain the same software release.

The position software is developed as a base platform plus a set of modular applications that can be installed individually, as required, to support operator services. The IWS base software is depicted below:

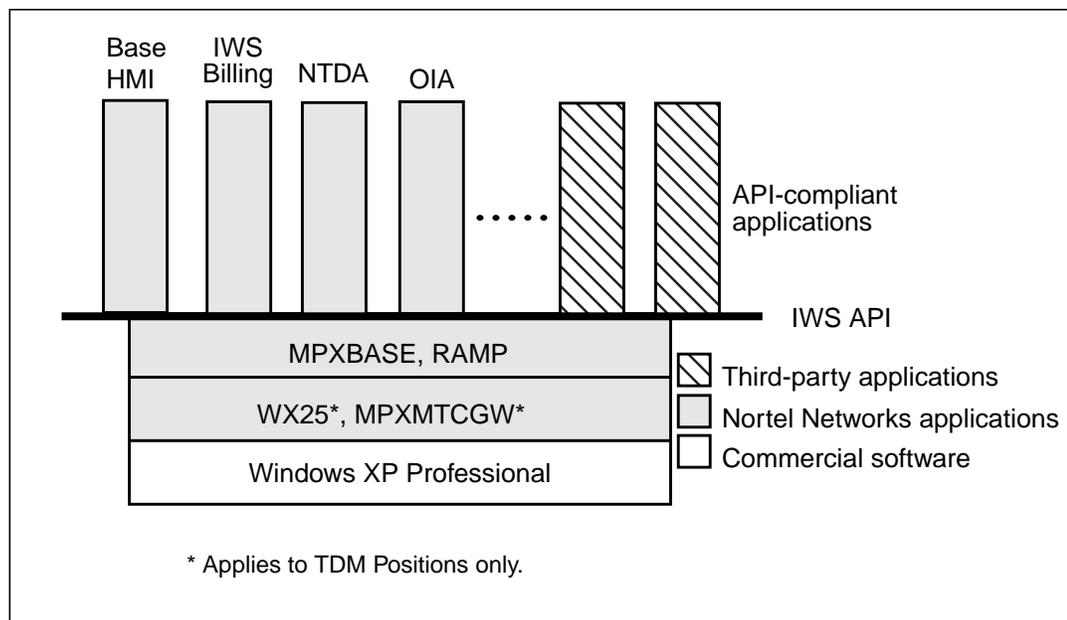


FIGURE 13. IWS Software Architecture

An API has been developed by Nortel Networks to facilitate future development. It consists of a set of common programmer guidelines (the API) and software interfaces referred to as the Software Development Kit (SDK). Other documentation, such as Microsoft Windows application development, will be provided by the manufacturer.

1.10 IWS TDM Positions

Each operator position has a dedicated voice link to the DMS switch that can be connected to a Nortel Networks digital telephony card or another vendor's digital voice equipment. A digital telephony card or voice equipment is required for the operator to talk to the subscriber. The LAN serves to carry data communications for all of the positions.

IWS positions are based on PC technology. These positions are normally used with a special IWS keyboard supplied by Nortel Networks. It is an operating company option to be equipped with an IBM standard 101 keyboard or a 122 key host-connected compatible keyboard, supplied by the operating company. Refer to Section 6.4.15 "Table XKBOARD" for additional information.

Software and plug-in cards are of both standard commercial and custom varieties. IWS adaptor cards support peripheral component interface (PCI) and industry standard (ISA) interfaces. The adaptor cards also support a V.35 and RS-422A electrical interface.

IWS base software provides for three basic IWS system functions: a general operator function, a DMS gateway function, and a RAMP function.

An IWS TDM position can be set up to operate as a general TDM operator position, or as a combined general position and DMS gateway, or as a combined general position and RAMP, or as a RAMP-only PC that cannot process IWS calls. The IWS system functions are identified as follows:

- **General TDM Operator Function:** (The general operator position is also referred to as a general position or operator position.)

A general operator position contains IWS base position functionality and LAN connectivity (Ethernet or Token-ring) to other IWS positions. A digital telephony card and LAN interface are included.

- **DMS Gateway:** To operate as a DMS gateway, an IWS position contains communication functionality for one X.25 data link to the DMS switch. The DMS gateway position also contains the IWS base position functionality and IWS LAN connectivity of a general operator position. In other words, a DMS gateway serves as a general operator position as well as a gateway to the DMS switch. Therefore, an ARTIC X.25 card, a LAN interface, and an optional digital telephony (audio) card are included in a DMS gateway position.

A pair of DMS gateways provides redundant data links to the DMS switch. A non-redundant configuration (one gateway) is also supported. The data links transport messages between the LAN and the DMS switch. Any position on the LAN has a virtual data link to the DMS switch through a DMS gateway. Both the voice links and the DMS data links terminate on channel banks from where they are carried on T1 links to the DMS through a TOPS Message Switch (TMS). Data is carried from the TMS through the network to the DMS bus and then to the computing module (CM) of the DMS. Voice paths are switched through the network for connection between incoming or outgoing trunks and the TMS. Any position on the LAN has a virtual data link to the DMS switch through the DMS gateway. Both the voice links and the DMS data links terminate on channel bank

(CB) equipment, from where data is carried on T1 links to the DMS switch. Voice paths are switched through the network for connection between incoming or outgoing trunks and the DMS switch.

- **RAMP:** Each IWS LAN has a RAMP (Remote Access Maintenance Position) that is used to perform maintenance on other IWS operator positions.

The RAMP can control IWS operator positions on its own LAN, and it can also be used to remotely maintain IWS positions that are located on other IWS LANs. This remote RAMP control of another LAN is done through a connection to the RAMP located on the other LAN.

RAMP application software is loaded as part of the IWS base software on an IWS position. Therefore, any IWS position except a DMS gateway can be set up to operate as a combined RAMP and general operator position. (If preferred, a RAMP can be used only to perform maintenance.) A TDM RAMP position can only maintain a cluster of TDM positions. A TDM RAMP position maintaining IP positions is not supported.

Note: The IWS software installation procedure allows for a PC to be loaded and set up as a RAMP-only position. When this is done, the loaded PC cannot perform IWS call processing and is **not considered** an IWS position. But, a RAMP-only PC can be used to upgrade IWS positions with IWS base software and to monitor IWS positions.

External gateways (routers) are used to connect the IWS LAN to remote database systems such as a Directory One database or calling card database.

1.11 IWS IP Positions

Each operator position has a direct IP connection to the DMS for exchanging IP position maintenance and OPP data messages, which are carried as IP packets. This IP connection is accessed via the local LAN. The local LAN communicates with the TOPS-IP network via router access.

Voice connections are set up dynamically on each call using the SIP Voice Over IP protocol. The voice conversations are carried as IP packets via the local LAN, which communicates with the TOPS-IP network via router access. A Plantronics DA60 audio device/headset is required on each IP position in order for the operator to talk to the subscriber.

IWS positions are based on PC technology. These positions are normally used with a special IWS keyboard supplied by Nortel Networks. It is an operating company option to be equipped with an IBM standard 101 keyboard or a 122 key host-connected compatible keyboard, supplied by the operating company. Refer to XKBOARD in Section 6.4.15 on page 234.

IWS base software provides for two basic IWS system functions: a general IP operator function, and a RAMP function.

An IWS position connected to an IP network configuration can be set up to operate as a general operator position, or as a combined general position and RAMP, or as a RAMP-only PC that cannot process IWS calls. The IWS system functions are identified as follows:

- **General Operator Function:** (The general operator position is also referred to as a general position or operator position.)

A general operator position contains IWS base position functionality and LAN connectivity (Ethernet) to other IWS positions, as well as to the TOPS IP Network. A card and LAN interface are included. A Plantronics DA60 audio device is also required.

- **RAMP:** Each IWS LAN has a RAMP (Remote Access Maintenance Position) that is used to perform maintenance on other IWS operator positions.

The RAMP can control IWS operator positions on its own LAN, and it can also be used to remotely maintain IWS positions that are located on other IWS LANs. This remote RAMP control of another LAN is done through a connection to the RAMP located on the other LAN.

RAMP application software is loaded as part of the IWS base software on an IWS position. Therefore, any IWS position can be set up to operate as a combined RAMP and general operator position. (If preferred, a RAMP can be used only to perform maintenance.) An IP RAMP position can only maintain a group of IP positions. An IP RAMP position maintaining TDM positions is not supported.

Note: The IWS software installation procedure allows for a PC to be loaded and set up as a RAMP-only position. When this is done, the loaded PC cannot perform IWS call processing and is **not considered** an IWS position. But, a RAMP-only PC can be used to upgrade IWS positions with IWS base software and to monitor IWS positions.

External gateways (routers) are used to connect the IWS LAN to remote database systems such as a Directory One database, an OIA database, or calling card database. The routers also are used to connect the IWS LAN to the DMS TOPS-IP Network, for both data messaging and Voice over IP communication.

1.12 IWS RAMP Modes

The IWS RAMP can be used in two different ways: as an on-ring RAMP and an off-ring RAMP.

- **On-ring RAMP:** In this mode, both IWS base and RAMP applications are turned on, and the RAMP monitors IWS positions by way of its local IWS LAN.
- **Off-ring RAMP:** In this mode only the RAMP application is active (the position's IWS base application is turned off). An off-ring RAMP is first connected to the local RAMP of another IWS LAN. Once this RAMP-to-RAMP connection is made, the off-ring RAMP can be used to control IWS positions located on the

other (remote) IWS LAN. (Note that an off-ring RAMP cannot monitor IWS positions by way of its own LAN as does an on-ring RAMP.) The RAMP-to-RAMP connection can be made by way of a WAN/LAN connection or by way of a modem dial-up connection.

Note: A non-IWS, stand-alone RAMP-only PC cannot be used in an on-ring RAMP mode. It can only be used in the off-ring RAMP mode.

The on-ring RAMP in Figure 14 is performing maintenance on IWS positions attached to its IWS LAN; whereas, the off-ring RAMP in Figure 15 is performing maintenance through a RAMP-to-RAMP connection to IWS positions on a remote IWS LAN. The RAMP application must be running on both off-ring and on-ring RAMPs so that a RAMP-to-RAMP connection can be made. The RAMP has to be assigned a valid LAN destination because the IWS position logs are sent to the RAMP. The RAMP does not have to be an IWS position supporting an operator. The use of a printer with a RAMP is optional. (Refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015 for more detail on RAMP operations.)

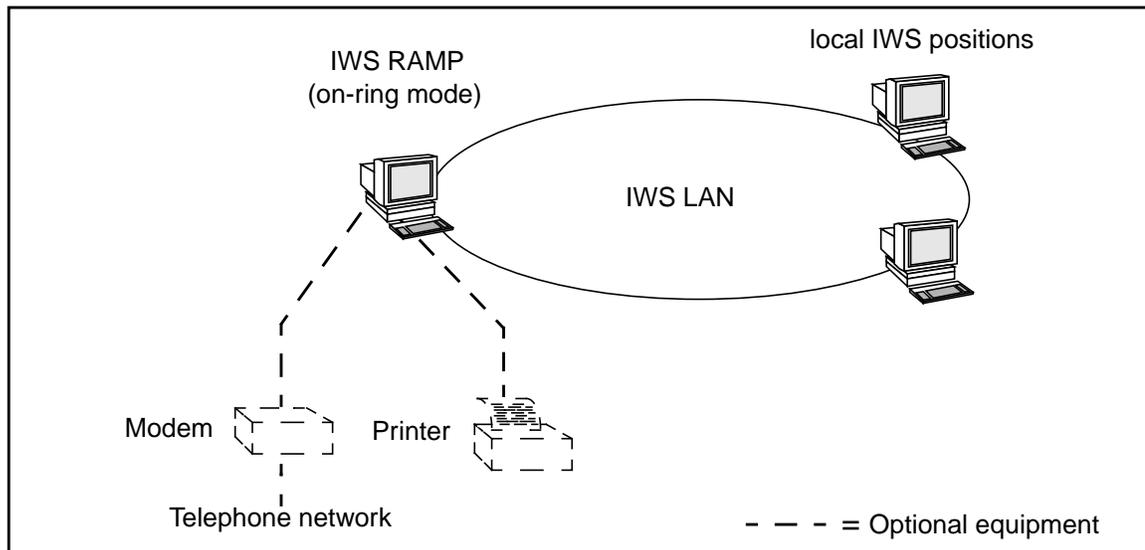


FIGURE 14. On-ring RAMP Controlling Local LAN

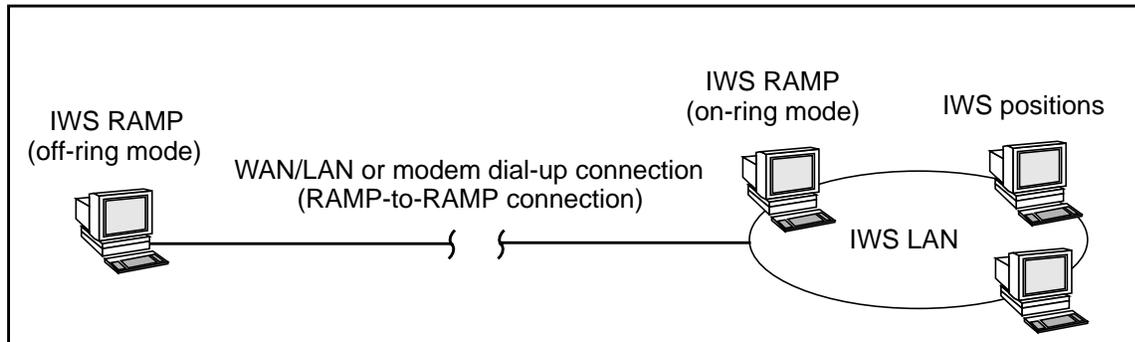


FIGURE 15. Off-ring RAMP Controlling a Remote LAN

2.0 Operating system considerations

This chapter describes operating system considerations, including how to install Windows XP Professional on an IWS PC.

2.1 Windows XP Professional Installation and Setup Procedure

Windows XP Professional is introduced as of IWS 17.1 and must be installed on all personal computers (PCs). For new installations of IWS 17.1, Windows XP Professional must be procured from a third party vendor. Neither Nortel nor Volt Delta Resources provides the operating system.

Previously, if a new PC was procured from Arrow Electronics, the IWS base unit was delivered with the Windows operating system installed. This customized version is no longer available. The user would still need to perform the procedures on “Block E: Initial Startup of Windows XP Professional” on page 64 and “Block G: Windows XP Professional Post-Installation Instructions” on page 69.

If upgrading an existing PC, please refer to Table 7 to determine which procedures are required.

TABLE 7. Installation Roadmap

Windows XP Source	Purchased Arrow image of Windows XP Professional			Windows XP Professional sourced elsewhere				In-structions
	Nortel Qualified Hardware		Other Hardware	Nortel Qualified Hardware		Volt Delta	Other Hardware	
	NTNX51UB, NTNX51WB	Dell GX150 GX270		NTNX51UB, NTNX51WB	Dell GX150 GX270	HP DC5000		
Steps that Apply								
Backup existing datafill ^a	Y	Y	Y	Y	Y	Y	Y	page 54
Adding an internal CD-ROM	Y	N	^b	Y	N	N	^b	page 29
Adding memory	Y	N	^b	Y	N	N	^b	page 29
BIOS Change	Y	Y	^c	Y	Y	Y	^c	page 56
Configure Adapter Cards (TDM only)	Y/N Depends on ISA	N	^d	Y/N Depends on ISA	N	N	^d	page 38
Windows XP Professional Installation	Y	Y	Y	N	N	N	N	page 63

TABLE 7. Installation Roadmap

Windows XP Source	Purchased Arrow image of Windows XP Professional			Windows XP Professional sourced elsewhere				In-structions
	Nortel Qualified Hardware		Other Hardware	Nortel Qualified Hardware		Volt Delta	Other Hardware	
	NTNX51UB, NTNX51WB	Dell GX150 GX270		NTNX51UB, NTNX51WB	Dell GX150 GX270	HP DC5000		
Using HP Compaq supplied Windows XP Professional	N	N	N	N	N	Y	N	page 67
Windows XP Professional Post-Installation Instructions	Y	Y	Y	N	N	N	N	page 69
Configuring Windows XP Professional for IWS	N	N	N	Y	Y	Y	Y	page 353
Daylight Savings Time	Y	Y	Y	N ^e	N ^e	N ^e	N ^e	page 359
Keyboard driver	Y	N	Y	Y	Y	Y	Y	page 491
Audio Card driver (TDM only)	N	N	N	Y	Y	N	Y	page 69
Plantronics DA-60 Audio Device install (IP only)	N ^f	N	N	Y ^f	Y	Y	Y	page 503
DMS Gateway installation (TDM only)	N	N	N	Y	Y	N	N	page 395
Installing IWS software	Y	Y	Y	Y	Y	Y	Y	page 73
Datafill restoration	Y ^a	Y ^a	Y ^a	Y ^a	Y ^a	Y ^a	Y ^a	page 72

- a. If currently using an IWS position with IWS 13.0 or 15.2.
- b. Depends upon what is currently on the PC. It must meet the hardware requirements on page 23.
- c. Must provide the equivalent to the setting described in the BIOS section on page 56.
- d. The ARTIC adapter card will require installation. other adapter cards depend upon the customer's hardware.
- e. Steps were already performed under the section for Configuring Windows XP Professional for IWS.
- f. Only NTNX51WB is supported for IP positions.

Note: The instructions in the following section are based upon previously receiving a CD with the Windows XP Professional image from Arrow Electronics. The user of this installation procedure is expected to have a basic knowledge of PCs and the Microsoft Windows system. Information contained here uses commands and steps that are described in more detail by vendor documentation specific to the PC and Windows XP Professional. The entire procedure consists of Blocks A through I.

2.1.1 Block A: Install Requirements

Install Requirements

1. **READ THE ENTIRE PROCEDURE (Blocks A through I) at least once before performing the procedure to prepare and obtain information you will need for the various steps.**
2. **The following considerations apply.**
 - This procedure requires a CD image previously provided by Arrow Electronics.
Note: If using a CD **NOT** supplied by Arrow Electronics, please refer to the vendor installation documentation, and then refer to Appendix A for configuration instructions.
 - Verify that the PC meets the hardware requirements as stated in the “TWS Hardware Platform and Software Release Compatibility Guide” on page 26.
 - There is no upgrade path from Windows 95 to Windows XP Professional. All upgrades require installing a new operating system.
 - Because of Microsoft licensing agreements a RAMP cannot be used to distribute the Windows XP Professional operating system loaded by this procedure.
 - Nortel Networks strongly recommends that the user verify that they have installed the most current Service Pack available from Microsoft. Since Service Packs are continuously being updated, it is the user’s responsibility to maintain current levels of software after the initial installation. Please refer to the Microsoft documentation for more information on how to do this.
3. **Since this installation overwrites all information on the PC, datafill files must be backed up PRIOR to installation.**
4. **Information required during installation must be obtained prior to beginning the installation. This information includes the PC’s:**
 - IP Address¹
 - Subnet Mask
 - Gateway IP Address(es)
 - Computer Name

1. This is available by going to Network, and selecting the Identification tab.

-
- 5. For TDM positions, if your PC uses a PCI Audio card, you MUST upgrade the Flash ROM to the 10.00 version BEFORE loading Windows XP Professional.**

Verify that your current version is 10.00. If it is not, you must upgrade before installing Windows XP Professional or you will not have the opportunity to upgrade. As of IWS 17.1, Nortel Network no longer supports flashing the ROM. For installation information, please refer to “Appendix F: PCI audio card (NTNX52CC) flash loader” on page 513.

- 6. Each PC is required to activate the Windows XP Professional operating system.** This can be done either through the Internet (requiring Internet access) or by calling Microsoft Customer Service. The Microsoft activation procedure will alert the user when this is required.

WARNING: If the PC is NOT to be activated at the time of installation, the date settings in the BIOS *must* be reset to June 27, 2003. If the date is not reset, immediate activation of Windows XP Professional is required. The user cannot proceed until activation is completed.

- 7. Each PC must be activated with its own Certificate of Authenticity (COA).** Each previous IWS order contains a CD from Arrow Electronics with the OEM Windows XP Professional image. This software has been updated for IWS users and should be used to install Windows XP Professional. Follow the installation procedure.

A shrink-wrapped copy of Windows XP Professional with a Certificate of Authenticity (COA) is also included in your shipment. Keep this package for proof that you purchased a copy of the software. Entering this COA is required during the installation of Windows XP Pro. However,

DO NOT INSTALL THIS SOFTWARE.

- 8. Prior to the installation process, if the position is connected to the switch, contact switch maintenance to place the position into an Installation Busy (INB) state. Once installation is complete, the position must be returned to service.**

2.1.2 Block B: Backup Existing Datafill

Backup Existing Datafill

1. **READ THE ENTIRE PROCEDURE (Blocks A through I) at least once before performing the procedure to prepare and obtain information you will need for the various steps.**
2. **Re-read Block A before using this procedure.**
3. **It is IMPORTANT that you backup any datafill files that you want preserved.**

The Windows XP Professional installation will overwrite all existing files on the PC. Therefore, it is imperative that you follow this procedure carefully.

IMPORTANT!

The datafill floppy provided with the IWS 17.1 installation is intended for systems updating from IWS 15.2 to IWS 17.1 ONLY. If upgrading from a version prior to IWS 15.2, the datafill floppy may be used, but .LNG and .TBL files may need to be manually datafilled.

4. **Verify that the functionality for Ctrl+Alt+Del is on.**

Note: This functionality can be turned on via RAMP. See the *TOPS IWS RAMP and Provisioning User's Guide, 297-2251-015* for instructions.

5. **Verify that IWS BASE and RAMP, if applicable, are turned off.**

Using a Windows 95 machine, select **Ctrl+Alt+Del**. This brings up the Close Program window. Select MPX Base, and select End Task by using **Alt+E**.

Note: If the position is off, verify that the PC is a live IWS system.

CAUTION:

IWS positions should be taken down one ring at a time.

6. **From the Windows desktop, press Ctrl+ESC.**
7. **From the Run menu, type in A:\setup
DO NOT SELECT OK YET.**
8. **Insert the floppy into the drive.**
Note: This needs to be done for each type of position on the ring: General IWS, Ramp, and Gateway.
9. **Select Enter.**

-
10. **A Progress bar will appear. Once it has reached 100%, a Datafill Conversion Setup window appears with a Welcome Screen.**
 11. **Select Next.**
 12. **It may take several minutes for the actual datafill to be saved to the floppy disk.**
 13. **Once the system has backed up the datafill, a Setup Complete window appears.**
 14. **Click on Finish.**

Note: Only one source diskette is required *per type of position per ring* **UNLESS** some positions have unique setups or software application loads.

15. **Eject the diskette and store in a safe place until you are ready to restore the datafill.**
Making a backup diskette before continuing the conversion process is **highly recommended**.

2.1.3 Block C: BIOS Settings

BIOS Settings

Follow the BIOS Settings instructions based upon the type of PC being upgraded.

2.1.3.1 BIOS Settings for HP Compaq DC5000

1. **Read Blocks A through I before using this procedure.**
2. **Read this procedure completely before proceeding. Many steps require immediate action.**
3. **Turn on the power switch of the PC.**

If the PC is already powered on, select Ctrl+ESC, press “U” to select turn off the computer, and press “R” to Restart the machine. Select “Y” or click on Yes. Wait a few seconds, and then turn it on again.
4. **When the position is starting up, press the F10 key to open a BIOS setup session.**
5. **Using the down arrow key, select the appropriate language.**
6. **Press Enter.**
7. **From the main BIOS menu, use the right arrow key to select “Security”.**
8. **Use the down arrow key to select, “Device Security”.**
9. **Press Enter.**
10. **Use the down arrow key to select, “System Audio”.**
11. **Use the right arrow key to change the selection from “Device available” to “Device hidden”.**
12. **Press the F10 key to accept the change.**
13. **Use the left arrow key to select “File”.**
14. **Use the down arrow to select “Save Changes and Exit”.**
15. **Press Enter.**
16. **When the “Save Changes and Exit” window appears, press the F10 key to accept.**
17. **Proceed to “Block F: Windows XP Professional pre-installed on the HP Compaq DC5000.” on page 67.**

2.1.3.2 BIOS Settings for Dell GX150 or GX270

1. **Read Blocks A through I before using this procedure.**
2. **Read this procedure completely before proceeding. Many steps require immediate action.**
3. **Turn on the power switch of the PC.**

If the PC is already powered on, select Ctrl+ESC, press “U” to select Turn off the Computer, and press “R” to Restart the machine. Select “Y” or click on Yes. Wait a few seconds, and then turn it on again.

4. **When the message “F2 = Setup” is displayed during startup, press the F2 key on the keyboard to open a BIOS setup session.**

If you don't press key F2 in time, wait for the PC to restart, and repeat steps 1 and 2.

5. **Insert the Windows XP Professional CD into the CD ROM drive.**
6. **If you are not planning to activate the Microsoft Windows XP Professional operating system during this installation, and you purchased the Microsoft Windows XP Professional from Arrow Electronics, then you must reset the date in the BIOS as follows:**

- Using the down arrow keys, scroll down to the System Date.
- Select the enter key to highlight the month.
- Use the plus “+” or minus “-” keys to reset the number to 06 (June).
- Use the right arrow key to move to highlight the day field.
- Use the plus “+” or minus “-” keys to reset the number to 27.
- If the year value is not 2003, use the right arrow key to highlight that field.
- Use the plus “+” or minus “-” keys to reset the number to 2003.

7. **Use the Downkey (CA Call) to scroll down to the Integrated Devices BIOS.**
8. **For the Dell GX150 or GX270, verify the following Integrated Devices and update the settings as needed:**

Ethernet Gateway	Default BIOS settings	Updated BIOS for IP Positions
Sound	Off	
Network interface controller	On (Note: Off for token ring)	
Mouse port	On	
USB Emulation	Off	
USB Controller	Off	On (For IP positions)
PCI Slots	Enabled	
AGP Slots	Enabled	
Serial Port 1	Off	

Ethernet Gateway	Default BIOS settings	Updated BIOS for IP Positions
Serial Port 2	Off	
Parallel Port	Mode EPP, I/O Address 378h	
IDE Drive Interface	Auto	
Diskette Interface	Auto	
PC Speaker	On	
Primary Video Controller	Auto	
Video DAC Snoop	Off	
IOAPIC Support	Disabled	

TABLE 8. Ethernet Gateway BIOS for GX150

Ethernet Gateway	BIOS settings
Sound	Off
Network interface controller	On
Mouse port	On
USB Emulation	On
USB Controller	On
PCI Slots	Enabled
Serial Port 1	Off
Serial Port 2	Off
Parallel Port	Mode EPP, I/O Address 378h
Diskette Interface	Auto
PC Speaker	On
Primary Video Controller	Auto
Onboard Video Buffer	1 MB

TABLE 9. Ethernet Gateway BIOS for GX270

9. Use the Downkey (CA Call) to scroll down to the IRQ Reservations. Verify that the settings are: IRQ5 reserved. All others available.
10. Use the Downkey (CA Call) to scroll down to the Boot Sequence.
11. Press Enter.
12. A new screen will appear denoting the existing Boot Sequence. Verify that the CD Rom is at the top of the list and is enabled.
Note: Use the Up or Down key as needed to highlight the CD Rom selection. Once it is selected, press the space bar to enable it. Use the plus “+” or minus “-” keys to move the selection to the correct location.
13. Press Enter.
14. Press ESC.
15. The “Save Changes and Exit” window appears.

Note: If this window does not appear, you have not made any changes. If you intended to, start the procedure over at Step 1.

16. Press Enter.

17. Proceed to “Block D: Installing Windows XP Professional” on page 63.

2.1.3.3 BIOS Settings for Intel PCs: NTNX51UB and NTNX51WB

1. Read the previous blocks before using this procedure.

(Refer to the Intel document Advanced/RH LPX Motherboard Product Guide for more detail on using the BIOS setup program.)

2. Turn on the power switch of the PC.

If the PC is already powered on, turn it off, wait a few seconds, and then turn it on again.

3. When the message “MOTHERBOARD” or “F2 = Setup” or “Press <F2> to enter SETUP” is displayed during startup, press the F2 key on the keyboard to open a BIOS setup session.

If you don't press key F2 in time, wait for the PC to restart, and repeat steps 1 and 2.

If you are told to press key F1 to access Setup, you are working with a type of PC (an Intel 166 MHz PC for example) that this procedure does not apply to.

4. Insert the Windows XP Professional CD into the CD ROM drive.

5. Press the F9 key on the keyboard to load setup default values.

6. When prompted to load default configuration, press Enter for yes.

7. Press the down arrow key to highlight ECC Configuration under the Main menu.

8. Press the Spacebar to change the ECC configuration from non-ECC to ECC.

9. If you are not planning to activate the Microsoft Windows XP Professional operating system during this installation, and you purchased Windows XP Professional from Arrow Electronics, then you must reset the date in the BIOS as follows:

- Using the down arrow keys, scroll down to the System Date.
- Select the enter key to highlight the month.
- Use the plus “+” or minus “-” keys to reset the number to 06 (June).
- Select Enter.
- Use the plus “+” or minus “-” keys to reset the number to 27.
- Select Enter.
- If the year value is not 2003, use the plus “+” or minus “-” keys to reset the number to 2003.
- Select Enter

10. Use the right arrow key to highlight the Advanced menu.

11. Use the down arrow key to highlight the Peripheral Configuration menu.

-
- 12. Press Enter and then use the down arrow key to highlight the Audio option.**

This Audio option **must be set to Disabled** at this time. If it is not already disabled, press the minus key to change this option from Enabled to Disabled. This option can be reset later to allow the use of a WAV file for an audible alert tone.
 - 13. If using a PC with a Token Ring (TDM only), use the down arrow key to highlight LAN and set to Disabled using the Spacebar.**
 - 14. If using an ISA Audio card, reserve IRQ10 using the following steps.**
 - Use the down arrow key to highlight Resource Configuration under the Advanced menu.
 - Press **Enter** to open the sub-menu.
 - Use the down arrow key to highlight IRQ10.
 - Press the Spacebar to change from Available to Reserved
 - Press **Esc** to exit the Advanced menu.
 - 15. Press the Esc key to exit the Peripheral Configuration screen.**
 - 16. If updating a DMS Gateway (TDM only), perform these steps. Otherwise, skip to step 17.**
 - Use the down arrow key to highlight Resource Configuration under the Advanced menu.
 - Press **Enter** to open the sub-menu.
 - Use the down arrow key to highlight C800-CBFF.
 - Press the Spacebar to change from Available to Reserved.
 - Use the down arrow key to highlight IRQ11.
 - Press the Spacebar to change from Available to Reserved
 - Press **Esc** to exit the Advanced menu.
 - 17. Use the right arrow key to highlight the Power menu.**
 - 18. Press the Spacebar to change the Power Management from Enabled to Disabled.**
 - 19. If this is an initial Windows XP Professional installation, use the right arrow key to select the BOOT tab.**
 - Use the down arrow key to highlight the boot device that points to your CD Rom drive.
 - Use the plus “+” key to move this to the first boot device position.
 - 20. Press the F10 key to display a Setup Confirmation prompt.**
 - 21. Press Enter for Yes to save and exit.**

The PC will restart with the new settings.

- 22. Proceed to “Block D: Installing Windows XP Professional” on page 63.**

2.1.4 Block D: Installing Windows XP Professional

Installing Windows XP Professional

1. Read all previous blocks before using this procedure.
2. Read this procedure completely before proceeding. Many steps require immediate action.
3. After updating the BIOS, you should have rebooted the PC. If so, then a Nortel IWS window appears. This window details the Arrow Electronics version of Windows XP Professional to be installed. Select Enter.
4. A warning window appears stating: “Warning: This will erase All Existing Data on Drives.” If you have not backed up your data, select Cancel and turn to “Block B: Backup Existing Datafill” on page 54. Otherwise, select Continue.
5. The Symantec Ghost window appears with a progress indicator. Once the initial CD has been loaded, it will request the second CD. Once that is completed, it will request the third CD.
Note: Please allow time for the Juneau PCs to spin up before pressing the OK to continue installing.
6. Once the install is completed, a window will appear saying “Remove CD and Reboot System.”

WARNING:
Do not press Return
until you have removed the CD Rom.

7. Remove the CD Rom.
8. Press Return.
9. Press Ctrl+Alt+Del to reset the computer.

2.1.5 Block E: Initial Startup of Windows XP Professional

Initial Startup of Windows XP Professional

1. **Read Blocks A through I before using this procedure.**
2. **Several screens may appear before the rebooting process is complete. Most will require no intervention. The following screens may appear that will require user intervention:**
 - a. The “Display settings” box may appear. Click “OK”.
 - b. A “Monitor display” box may appear asking if you can read it. Click “OK”.
3. **Once the system has completed rebooting from Block C, the “Welcome to Microsoft Windows” screen appears.**
4. **Click on “Next” or select ALT+N to continue.**
5. **The End User Licence Agreement window appears. Select Yes with the mouse, and then click on Next.**
6. **A window appears to verify that you have a Genuine copy of Microsoft Windows. Enter the OEM number provided from Arrow Electronics.**
7. **Click on next.**
8. **The “What’s your computer name” window appears. Enter the computer name.**

Note 1: This is not essential, but it will save an extra step at the end of the installation if you enter it here.

Note 2: The computer name is often the IP address. This must be entered with an “x” instead of periods “.” between the sets of numbers. Microsoft will not accept an IP address with periods. The final number should look like 123x123x123x1 instead of 123.123.123.1.
9. **Click on Next. This may take a few moments to complete.**
10. **Enter the Administrative password.**
11. **Click on Next.**
12. **Enter the domain, if applicable. Click on Next.**
13. **A new screen appears saying “Checking your Internet connectivity”.**
14. **A window opens asking “How will this computer be connected to the Internet?”**
15. **Select LAN, and then click on Next.**

-
16. **A window opens to “Set up a High Speed Connection”. Enter the information that was valid for the PC prior to installing Windows XP Professional.**

Note: If you do not have a DNS, please select the box to “Obtain DNS Automatically.” You cannot exit this window without a DNS selection.

17. **Click on Next.**

18. **A window opens asking “Ready to Activate Windows?”**

Note: You must activate the registration within 30 days to continue using Microsoft XP Professional. You may activate your registration either online through the Internet or by calling Microsoft customer service.

Two activation options are offered:

* If you select “**Yes**” to activate online through the internet, the “Let’s activate windows” screen will appear. Follow the activation instructions that appear on your screen.

* If you select “**No**” to not activate at this time, **you must have previously changed the System Date in the BIOS to 06/27/2003.** If you have NOT changed the date, then you **MUST** activate now. If you have changed the date, then you may delay activation and proceed to Step 18. You will still need to activate within 30 days. Refer to Section 2.1.5.1 on page 65 for how to activate at a later date.

Follow the steps according to your registration method. Then proceed to Step 18 in this procedure.

19. **Click on Next.**
20. **A window opens requesting “Who will use this computer” Enter “IWS User” exactly as shown.**
21. **Click on Next.**
22. **A “Thank you!” window appears.**
23. **Click on Finish.**
24. **Proceed to Block G.**

2.1.5.1 Activating Windows XP Professional at a later date

If you have chosen not to activate Windows XP Professional online during the initial startup process, you may register at any time by telephone or online by accessing the Windows Product Activation wizard. The wizard is located in **System Tools**, and may be started by clicking on the Windows Activation icon in the system tray. To manually locate it, click **Start**, point to **All Programs**, point to Accessories, point to **System Tools**, and then click **Activate Windows**.

Once activated, this Windows Activation icon disappears from the system tray. Until then, reminders will appear periodically during the next 30 days. After that time, you will be required to activate in order to continue to use Windows.

Telephone activation is available by contacting a Microsoft customer service representative. Once you enter the activation wizard and select the “Activate Windows by Phone” option, it will provide a telephone number based upon the country entered. If available, a toll-free number will also be provided.

Follow the activation instructions that appear on your screen.

2.1.6 Block F: Windows XP Professional pre-installed on the HP Compaq DC5000.

This procedure covers the steps required for starting up the HP Compaq DC5000 with Windows XP Professional operating system pre-installed.

1. **Setup the DC5000 hardware as documented by HP Compaq.**
2. **After the PC is hooked up, power up the DC5000.**
3. **A window opens stating, “Welcome to Microsoft Windows”.**
4. **Click on the Next button.**
5. **A window opens asking, “Select Your System Settings”.**
6. **Select “United States” for “I live closest to the region”.**
7. **Select “English” for “I type mostly in this language”.**
8. **Select “US”, for “I use this type of keyboard”.**
9. **Click on the Next button.**
10. **A window opens asking, “What time zone are you in?”**
11. **Select the appropriate time zone from the list.**
12. **Uncheck (if checked) the “Automatically adjust for daylight savings time”.**
13. **Click on the Next button.**
14. **A window opens stating, “The End User License Agreement”.**
15. **For both the upper and lower text boxes, select the “Yes, I accept” buttons for “Do you accept the terms of the EULA?”**
16. **Click on the Next button.**
17. **A window opens titled, “Help Protect Your PC”.**
18. **Select the “Not right now” button.**

Note: Because of the potential for automatic updates to be pulled down during call processing, which could negatively impact voice quality, it is recommended to turn this feature off. Depending on your particular setup, it may be possible to turn the feature on and have the updates pulled down at a time when the office is closed.
19. **Click on the Next button.**
20. **A window asking, “What’s your computer’s name?” appears.**

Note 1: This is not essential but will save an extra step at the end of the installation if you enter it here.

Note 2: The computer name is often the IP address. This must be entered with an “x” instead of periods “.” between the sets of numbers. Microsoft will not accept an IP address with periods. The final number should look like 123x123x123x1 instead of 123.123.123.1.
21. **Click on the Next button.**

22. A window appears “Checking your connectivity” and will automatically advance to the next screen.
23. A window asking, “Will this computer connect to the Internet directly or through a network?”
24. Select the option, “Yes this computer will connect through a local area network or home network”.
25. Click on the Next button.
26. A window asking, “Ready to register with Microsoft?” appears.
27. Select the option, “Yes, I’d like to register with Microsoft now”.
28. Click on the Next button.
29. A window asking, “Collecting Registration Information” appears. Enter in the requested information.
30. Click on the Next button.
31. A window stating, “Thank you!” appears.
32. Click on the Finish button.
33. The computer reboots at this point and eventually the Windows desktop appears.

2.1.7 Block G: Windows XP Professional Post-Installation Instructions

Windows XP Professional Post-Installation Instructions

This procedure covers the steps required for configuring Windows XP Professional that were not automatically updated during the previous steps.

2.1.7.1 Audio Devices

2.1.7.1.1 TDM Positions

Depending upon the audio card installed, a prompt window may appear as you complete customizing Windows XP Professional. That installation is what is described in this section.

Note 1: If you are using an ISA Audio Card, you must install the drivers manually. Please refer to Appendix C: Audio Card Driver installation, section “Installing Device Drivers for the IWS ISA Audio Card” on page 469.

Note 2: Dell GX150s do not support the ISA Audio Card.

If you are using a PCI audio card, the system automatically installs the driver. A window will appear in the bottom right portion of your screen denoting the successful installation of hardware including the GX150 Gateway (ARTIC) card. It will last for a few seconds, and then you will see the regular Windows desktop. If additional PCI components need installing, the system will automatically start the Found New Hardware Wizard:

1. **Read Blocks A, B, C and D before using this procedure.**
2. **Select the automatic installation option on the Found New Hardware Wizard window.**
3. **Click on Next.**
4. **A Hardware Installation window appears stating that the IWS PCI Audio Card has not “passed Windows Logo testing.” Select the “Continue anyway” button.**
5. **A “Completing the Found New Hardware Wizard” window appears.**
6. **Click on Finish.**

If you wish to verify the installation, go to the Device Manager under System Properties. If a symbol containing an exclamation point “!” is beside the driver, this denotes an improper installation.

2.1.7.1.2 IP Positions

IP positions require that the Plantronics DA60 USB Audio device/headset be installed as the system default Sound playback and default Sound recording device, as well as the system default Voice playback and default Voice recording device.

- Plug the DA60 into a USB port.
- The system will detect the new hardware and install the appropriate driver.
- From the Control Panel select Sounds and Audio Devices. Select the Audio tab. Ensure that “PLTDA60” shows up as the Sound playback default device, as well as the Sound recording default device. Select the Voice tab. Ensure that “PLTDA609” shows up as the Voice playback default device, as well as the Voice recording default device.

2.1.7.2 Router setup

Verify your router settings by referring to “Changing the Network Settings of an IWS Position” on page 101. If you require additional routers added to your setup, please refer to page 101.

2.1.7.3 Daylight Savings Time

Daylight Savings time also needs additional configuration. Please refer to Section 13.3 on page 359 for those instructions.

2.1.7.4 Screen Resolution

The last item to configure is the Screen Resolution. Please refer to Section 13.10.5 on page 385 for those instructions.

2.1.7.5 Keyboard Driver

The IWS keyboard may not always load properly on the Intel Juneau 350 MHz (NTNX51UB). If Windows XP Professional is installed on the platform, follow the instructions in Appendix D: Installing Device Drivers for the IWS Keyboard Filter, to ensure that the Device Manager’s entry for keyboard is assigned as “IWS Keyboard Filter.”

2.1.8 Block H: Installing IWS 17.1

Installing IWS 17.1

This procedure is described fully in Section 3.1 on page 73. Please refer to that section for installation instructions.

2.1.9 Block I: Restoring Datafill

Restoring Datafill

Once all of the previous block have been completed, it is time to restore the datafill.

A prompt window may appear as you complete customizing Windows IP Professional. That installation is what is described in this section.

1. **Read all previous blocks before using this procedure.**
2. **From the Start menu, bring up the Run menu and type *cmd*.**
3. **Insert the floppy diskette with the datafill.**
4. **Type *a:* at the command prompt**
5. **Type *restore***
6. **The datafill will automatically be restored. Read the screen and note important messages as the files are copied from the floppy to the hard drive.**
7. **Type *exit* to make the command prompt window to go away.**
8. **Reboot the computer.**
Either go under the Start menu and select Shut Down, and then Restart the Machine, or select Ctrl+ESC, press “U” to select Turn off the Computer, and press “R” to Restart the machine. Select “Y” or click on Yes. Wait a few seconds, and then turn it on again.

3.0 IWS 17.1 Software

This section contains installation procedures that apply only to IWS 17.1, and not to any other IWS release. The IWS installation is different with each IWS release.

IWS 17.1 operates only on the Windows XP Professional operating system. IWS 17.1 can be loaded on a PC that meets the hardware requirements listed in “IWS Hardware Platform and Software Release Compatibility Guide” on page 26. It is assumed the user of this installation document has a basic knowledge of personal computers (PCs) and Microsoft Windows XP Professional. Information contained here uses commands and steps that are described in more detail by vendor documentation specific to the PC and Windows XP Professional. Refer to these documents for more information.

The IWS software installation involves a single compact disk (CD) that is customized to contain only the products you have purchased.

3.1 Installing IWS 17.1 from the IWS CD

You can use the following procedure to

- install IWS 17.1 software for the first time
- reload IWS 17.1 onto a previous IWS 17.1 load
- upgrade from IWS 17.0 to IWS 17.1

Note 1: RAMP can only be used to upgrade existing IWS positions, and cannot be used to perform the initial IWS 17.1 installation. Due to the operating system conversion from Windows 95 to Windows XP Professional, IWS 17.1 must be installed manually on each PC since all information stored on the hard disk will be overwritten. After the initial IWS 17.1 software installation, RAMP may be used for future upgrades.

Note 2: All positions in a LAN must be converted to the new release simultaneously.

Complete these critical steps before you start the installation procedure.

- 1. Verify that Windows XP Professional is installed on the position.**

IWS 17.1 software can be installed only on a PC that has been loaded with the Microsoft Windows XP Professional operating system.

- 2. Ensure that the position has been put into a Busy INB state at the MP Level from the DMS switch MAP position.**

- 3. Insert the Nortel Networks IWS CD into the CD-ROM drive.**

Note 1: The CD-ROM drive is usually the D:\ drive, and this document refers to it as the D:\ drive. It is possible that the letter identifying your CD-ROM drive may be different.

Note 2: If this is a new installation, skip to Step 5.

- 4. Follow these substeps to reboot the position without restarting the IWS software.**

If the IWS base or RAMP application is running, follow substeps a through d to close the application and obtain the Windows desktop.

- a. Press Ctrl+Alt+Delete and select the Task Manager.
- b. Select the Applications Tab if it is not already selected.
- c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
- d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)

With IWS completely shut down, follow substeps a through d to reboot the position without restarting the IWS software.

- a. Press Ctrl+Esc to open the Start menu.
- b. Press the U key to open the Shut Down Windows window.
- c. Press the R key to select “Restart the computer.”
- d. Press the Enter key and wait for the message Windows XP Professional splash screen to appear. When it does, press and hold down the Ctrl key. Wait for the Windows desktop to appear, and then release the Ctrl key.

This prevents all software in the Program Startup folder from starting.

5. **From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.**
6. **Press the R key to open the Run dialog box.**
7. **Type d:\iws\setup.exe in the Open text box to run the SETUP.EXE program. Press Enter.**

Pressing Enter initiates the installation of IWS 17.1 software. At this point, the installation wizard takes over.

8. **Several windows appear during installation. Each is described in the following steps.**

You can return to a previous step by selecting the Previous button, or exit the program at any time by selecting the Cancel button or by pressing the function key F3. When press Cancel or F3, an information panel displays, asking if you are sure you want to exit. Press the X key for “Exit Setup” to exit the program.

9. **Following a brief hour-glass pause after SETUP.EXE starts, the setup informs you that IWS setup is preparing the installation.**

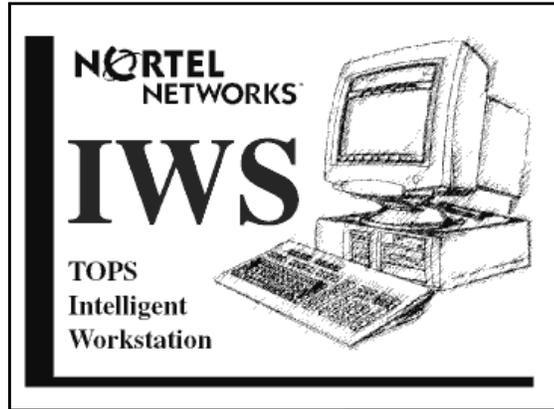


FIGURE 16. IWS Setup Screen

10. Wait until the Setup progress indicator display gives you a 100% indication.

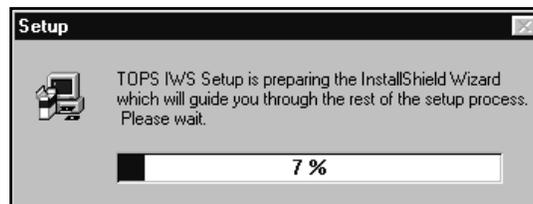


FIGURE 17. Set progress indicator display

11. The welcome screen introduces the product and gives a copyright notice and is for information only.

Note that the IWS version is shown in the lower right hand corner of the backdrop. Press the Enter key to continue.

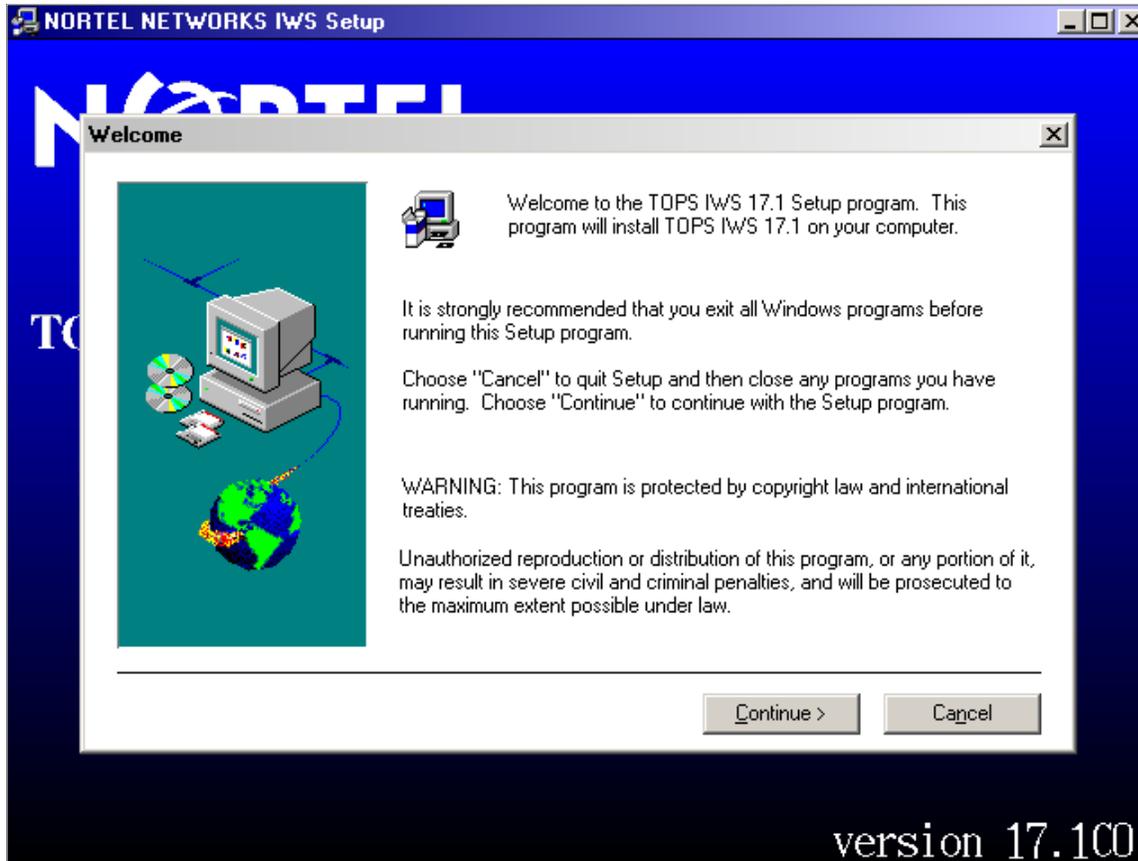


FIGURE 18. Welcome Screen

12. The selection chosen in the IWS Install Options window queries the existing network configuration.

The TDM configuration is the traditional IWS layout featuring the DMS Gateways for data communications, and separate voice links to each position with a Nortel audio card.

The IP configuration is a new IWS layout featuring Voice over IP which enables voice and data to be brought to the position through the Ethernet connection.

If no IWS software has ever been installed, you will see Figure 19. Select the appropriate option and select Continue.

If one of the options is selected, then IWS software has been installed previously, and the network configuration is automatically pre-selected as in Figure 20. If correct, select Continue.

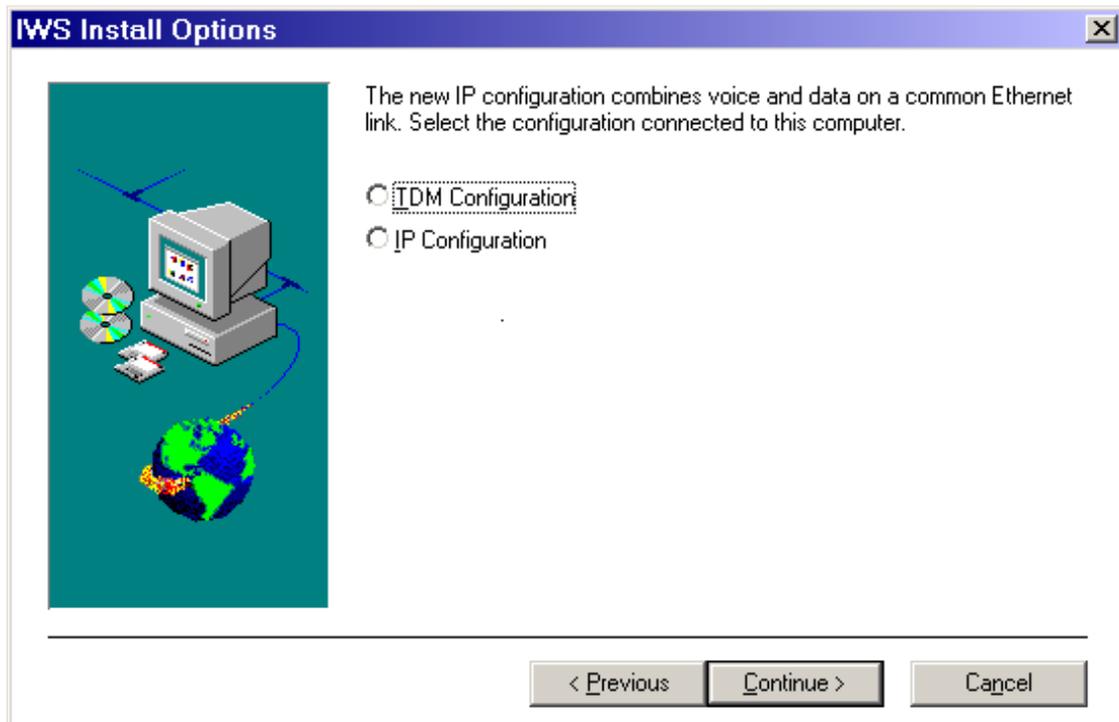


FIGURE 19. No configuration selected when installing on a new position

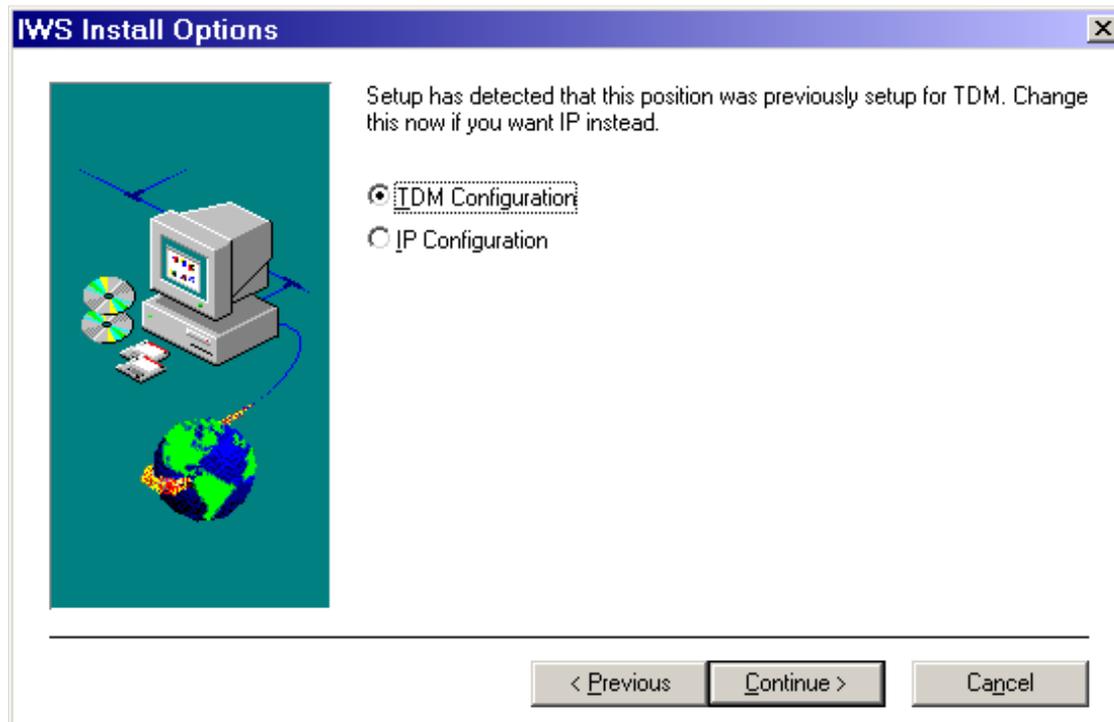


FIGURE 20. Pre-selected screen indicating IWS software had previously run on the position

13. The update datafill options depend on what pre-existing conditions are detected on an IWS position.

One of two conditions is possible:

- **No previous software is detected.**

Since no previous IWS loads were detected on the position, there is only one update choice. The screen would appear as in Figure 19 with no configuration selected.

The default option (top button indicating new IWS 17.1 files) is for a new or initial installation of IWS software. Use the arrow keys to highlight a selection, Tab to (or click on) the Continue button, and press the Enter key to continue.

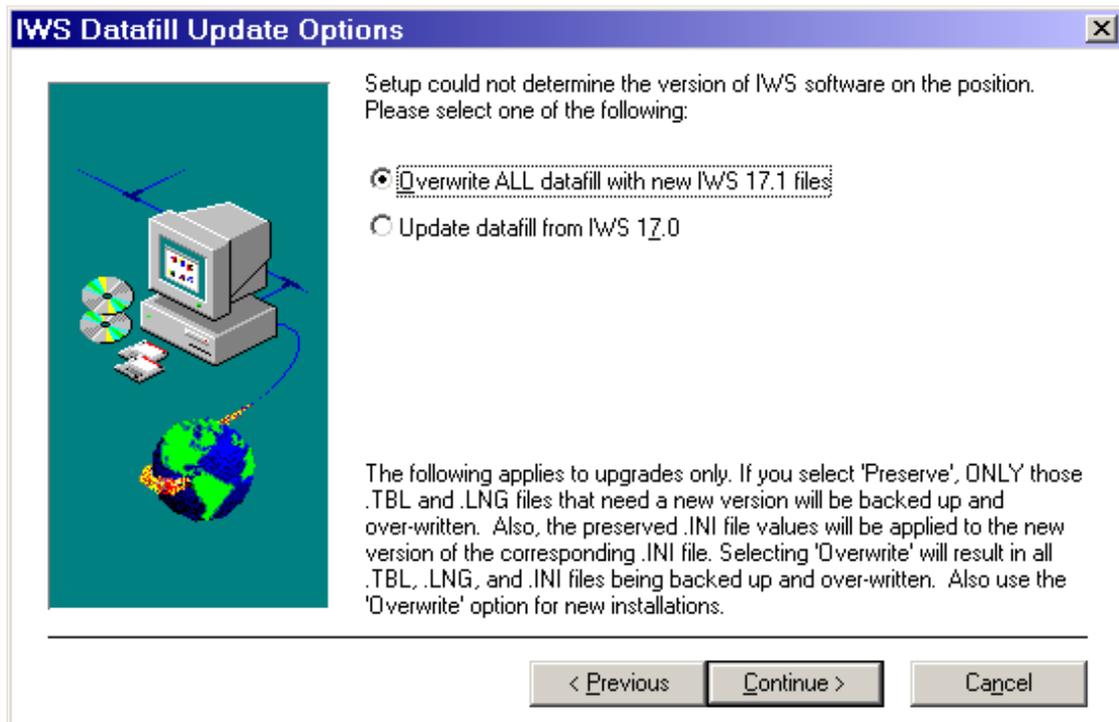


FIGURE 21. New installation of version 17.1

With the **Overwrite** option, **all existing IWS files** are overwritten with the default files of release IWS 17.1.

Files affected by the preserve option include files with extension INI, as well as the files with TBL or LNG extensions and the HOSTS file. Exactly which files and how the files are changed depend, in addition to other factors, on which options are selected during the upgrade in The Software Update Options dialog box (overwrite or preserve). Read the information in the dialog box carefully.

With the Preserve option, only those TBL and LNG files that need to be changed for release IWS 17.1 to work properly are changed or overwritten. As of IWS 13.0, the preserve option also affects files with an INI extension. (previously, the preserve option did not apply to INI files). With the current preserve option, an attempt is made to automatically propagate any previous user changes made to INI files into the current IWS 17.1 software load. This propagation is made only with previous loads that are within three releases of the current upgrade Use the arrow keys to highlight a selection, Tab to the Continue button, and press the Enter key.

OR

- An earlier or current IWS version is found

Updating from IWS 17.0:

An IWS 17.0 version may be found on the position, as shown in Figure 22. If so, there is an option to overwrite or to preserve files.

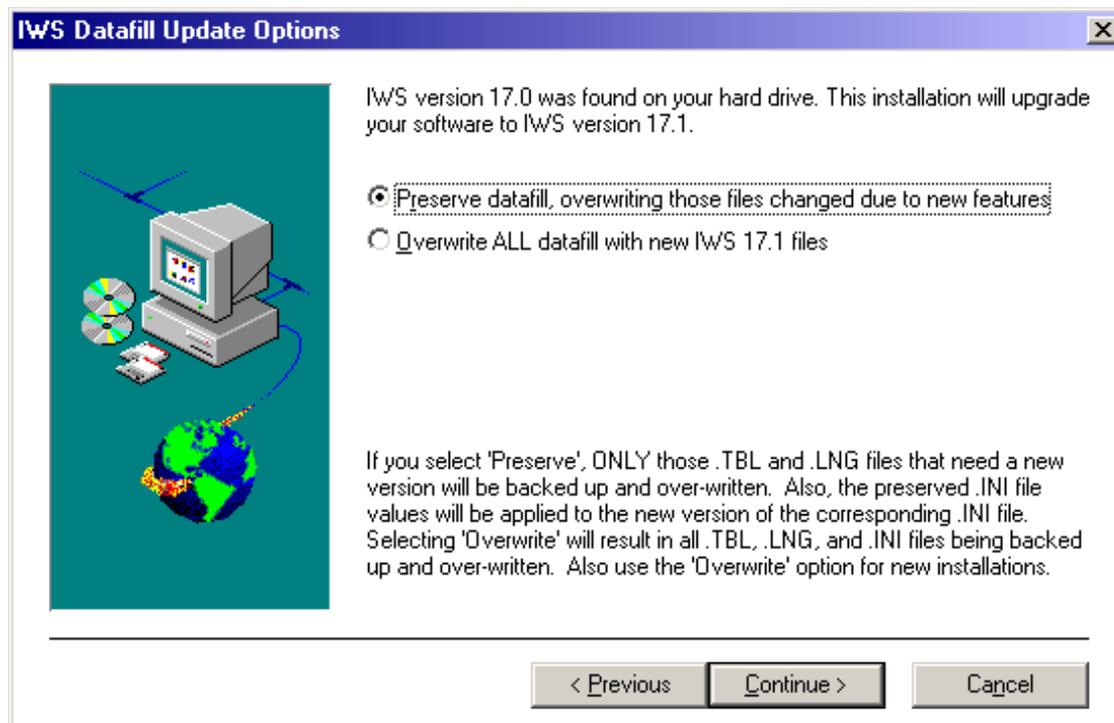


FIGURE 22. Upgrading from IWS 17.0

With the overwrite option, **all existing IWS files** are overwritten with the default files of release IWS 17.0.

Files affected by the preserve option include files with extension INI, as well as the files with TBL or LNG extensions and the HOSTS file. Exactly which files and how the files are changed depend, in addition to other factors, on which option in The Software Update Options dialog box (overwrite or preserve) and other options are selected during the upgrade. Read the information in the dialog box carefully.

With the preserve option, only those TBL and LNG files that need to be changed for release IWS 17.0 to work properly are changed or overwritten. As of IWS 13.0, the preserve option also affects files with an INI extension. (previously, the preserve option did not apply to INI files). With the current preserve option, an attempt is made to automatically propagate any previous user changes made to

INI files into the current IWS 17.0 software load. This propagation is made only with previous loads that are within three releases of the current upgrade (in this case of IWS 17.0, no previous releases are possible. Note that this also applies when a customized IWS 17.0 load is again reloaded with the IWS 17.0 CD).

In general, the preserve option matches each entry in a new IWS 17.0 INI file with the same entry type in the previous INI file, and propagates the older entry value into the newer INI file. This way, all of a user's previously-set values in the INI files are transferred into the newer IWS load. Note that a new upgrade entry that does not have a matching entry type in the previous INI file will not be changed. (The default value of a new 17.0 entry can be changed by a user as in previous releases.)

Use the arrow keys to highlight a selection, Tab to the Continue button, and press the Enter key.

Updating from IWS 17.1:

An IWS 17.1 version may be found on the position, as shown in Figure 23. If so, there is also an option to overwrite or to preserve files.

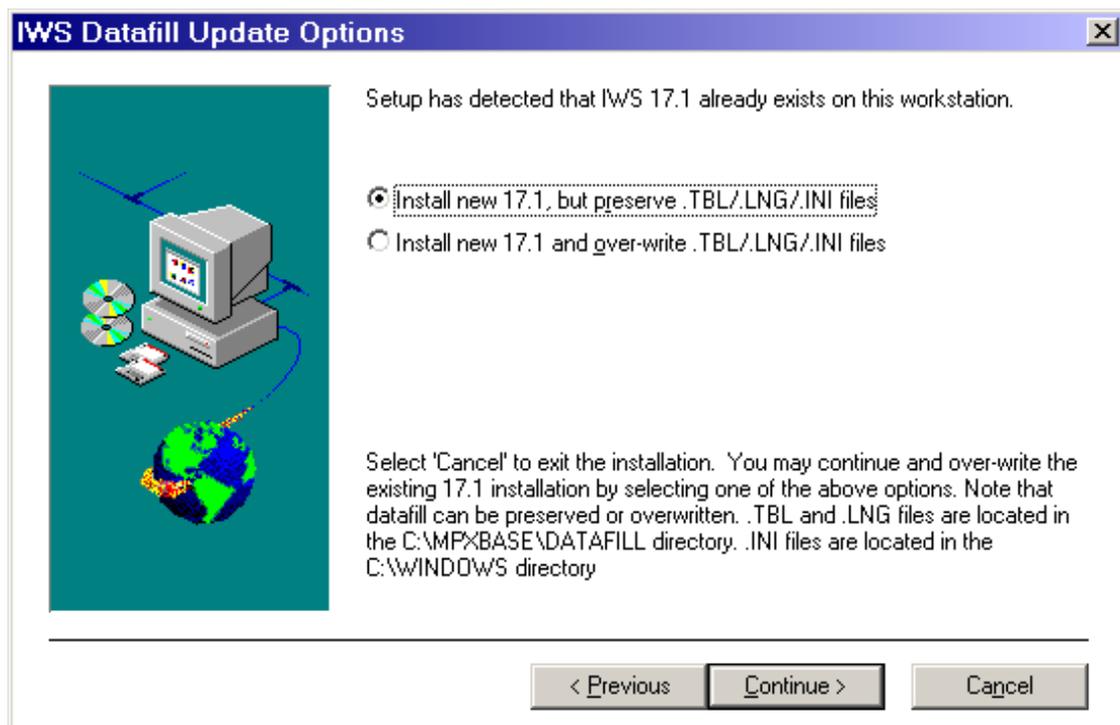


FIGURE 23. Version 17.1 Already Installed

The overwrite or preserve functionality works the same as described in the Updating from IWS 17.0 section above.

Use the arrow keys to highlight a selection, Tab to the Continue button, and press the Enter key.

14. The options in the Position Install Selection window determine how an IWS position is set up to operate.

When upgrading, it is normal practice not to change the type of position. In other words, a DMS gateway is usually not changed to a RAMP, nor is a RAMP changed to a DMS gateway. In the example of Figure 24, the position was previously set to operate as both a RAMP and general position.

Note 1: Because IWS base software contains the files needed for a position to operate as both a DMS gateway and a RAMP, steps are provided later in this installation section that can be used to convert a DMS gateway to a RAMP, or a RAMP to a DMS gateway.

Note 2: TDM positions will have the option for a DMS Gateway and General Position. An IP position cannot be a gateway and will not have that options. See Figure 24 and Figure 25.

Use the arrow keys to highlight a selection, Tab to the Continue button, and press the Enter key to continue.

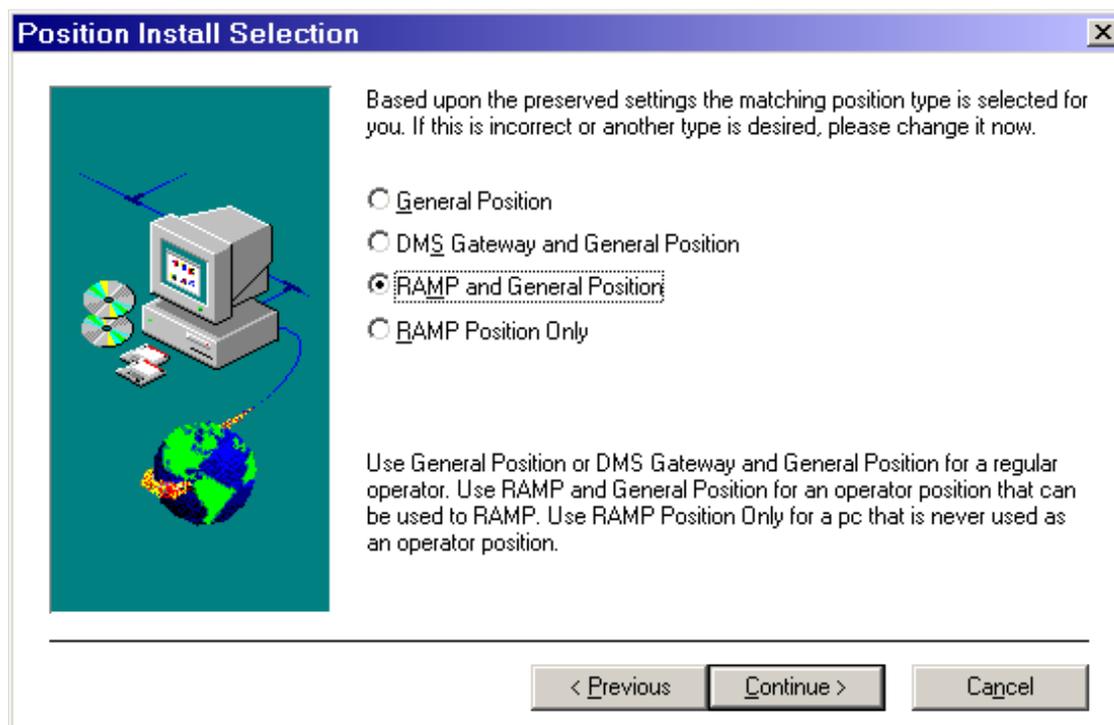


FIGURE 24. TDM Position Install Selection

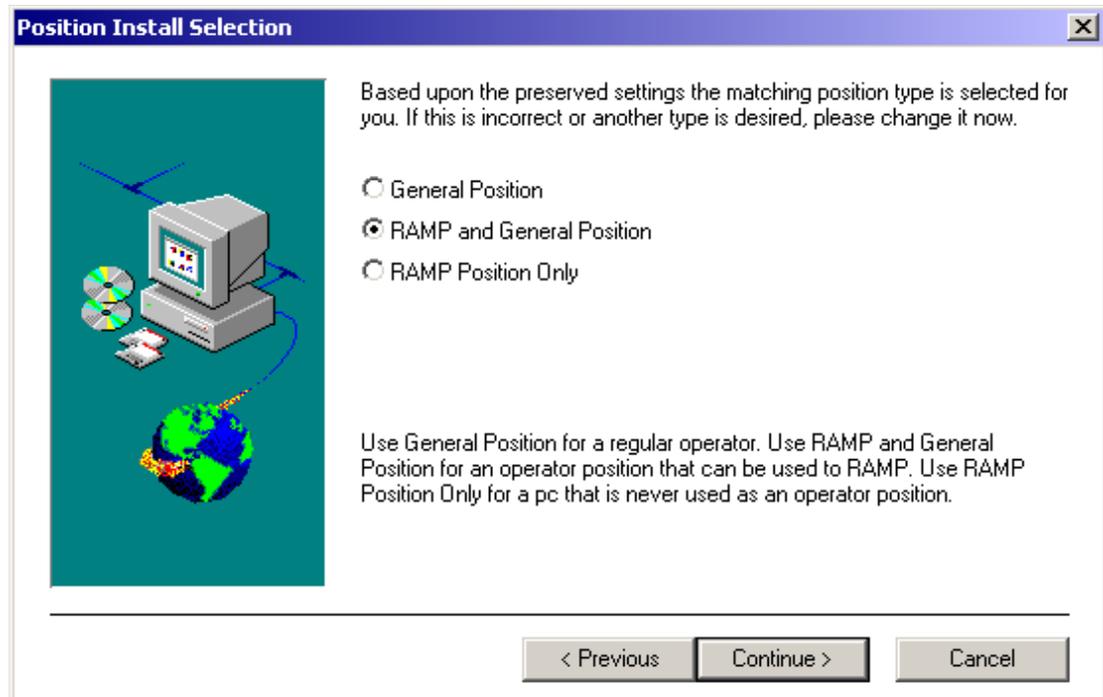


FIGURE 25. IP Position Install Selection

General Position: With this option, an IWS position is loaded with IWS base software and is set up to operate only as a general operator position.

DMS Gateway and General Position (TDM only): With this option, a position is loaded with base software and is set up to operate as both a DMS gateway and general operator position.

Note: It requires more than just setting this option to enable a position as a DMS gateway. A gateway position must also be equipped with an X.25 ARTIC card. (Refer to Chapter 1 for details.)

RAMP and General Position: With this option, a position is loaded with base software and is set up to operate as both a RAMP and a general operator position.

RAMP Position Only: This option allows for a non-IWS PC to be loaded with the RAMP application. This PC is **not considered** an IWS position. It cannot be used for IWS call processing. However, this PC can be used to monitor IWS positions and to upgrade the IWS base software of an IWS position. **It is important to know that if a position was previously set to operate as one of the first three types (as in the example of Figure 24) and the position type is changed to a RAMP Position Only, this position after this upgrade will be incorrectly identified as a General Position at a future upgrade.**

15. The IWS Application Selection dialog box displays the available IWS applications.

In the case of an initial IWS installation, no check marks appear in any of the component boxes. Check marks in the example of Figure 26 indicate that the IWS Base, OIA, Billing (previously NTOA), and EISA applications were previously loaded on this position.

The setup program works on the assumption that the upgrade to a new IWS release is unlikely to change which particular applications are loaded on a position. **Note that unchecking a previously checked application, such as NTDA, does not remove it from the position, or from the MPXINI.INI file as a registered application.** A newly added application, however, automatically appears in the mpxini.ini file. The setup program only installs applications; it does not *un*-install them. The current check marks just indicate what applications will be installed with the current IWS 17.1 load.

Tab to the Continue button, and press the Enter key to continue.

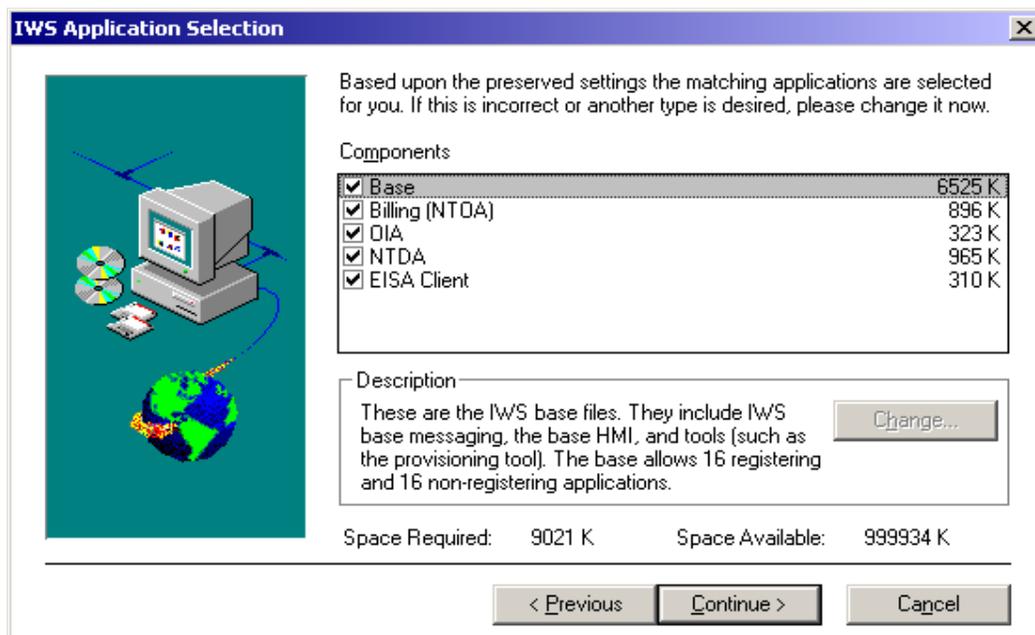


FIGURE 26. IWS Application Selection

Note 1: This screen may appear differently depending upon the applications purchased.

Note 2: If selecting the DMS Gateway (TDM only), continue to Step 16. Otherwise, skip to Step 17.

16. The DMS Gateway Electrical Interface window displays the available connections. (TDM position only.)

The DMS Gateway Electrical Interface window is used only when a required file is missing from the C:\QCFPRM directory. This window appears when a position is being upgraded from a non-DMS gateway position to a DMS gateway. Use this window to set proper electrical interface files in place.

Note: This screen does not appear for any type of position other than a DMS Gateway.

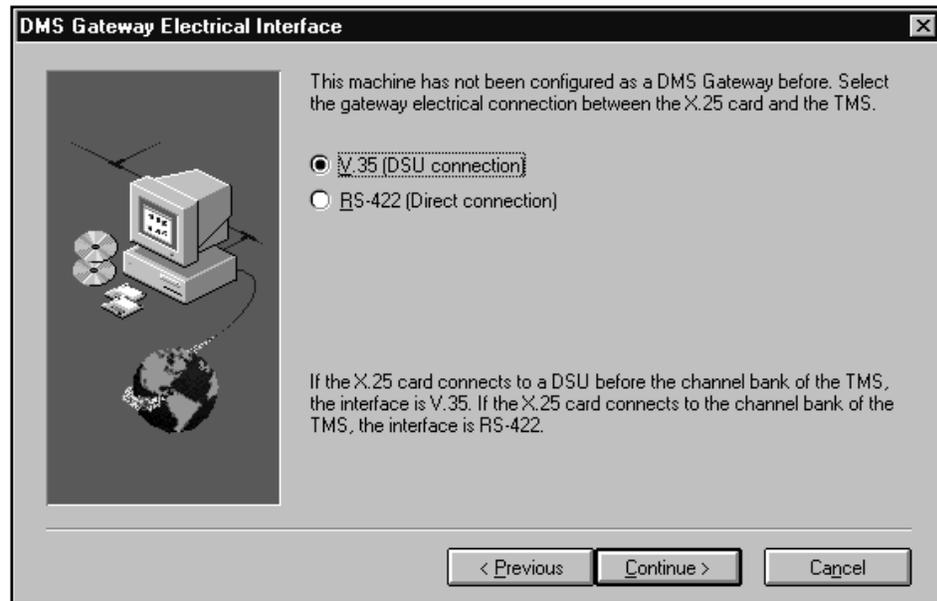


FIGURE 27. DMS Gateway Electrical Interface

17. The Start Copying Files dialog box contains a summary of applications selected to be installed.

It provides a final chance to back up to a previous window and make changes before the actual installation begins. Use the Page Up and Page Down keys or use the up and down arrow keys to scroll through the current settings. Tab to the Continue button, and press the Enter key to continue.

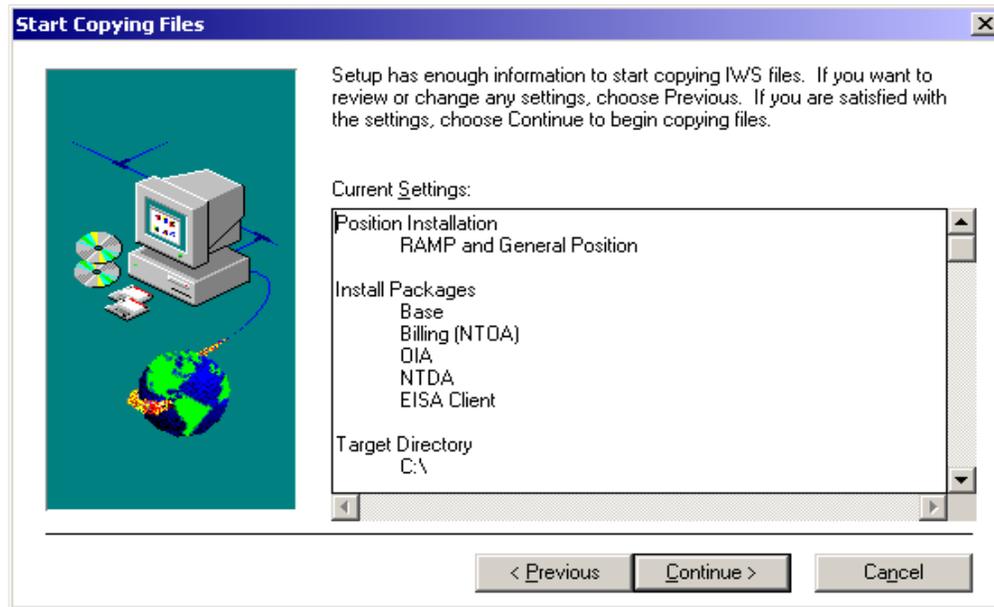


FIGURE 28. Start Copying Files

18. **The progress indicator is updated as selected application files are copied from the CD and installed.**

You will not be prompted to act during the copying of files. If previous datafill is not detected, you will see the information window shown in Figure 28.

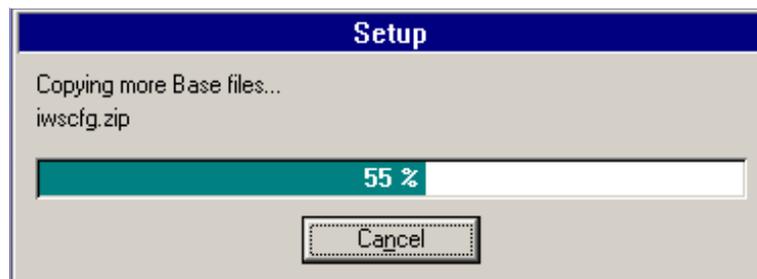


FIGURE 29. Progress Indicator

19. **The Installation Complete window indicates that the IWS software is now installed.**

DO NOT REBOOT THE PC AT THIS TIME.

- a. Remove the CD from the CD-ROM drive (usually the D:\ drive).
- b. Press the Enter key to choose OK and to close the Installation Complete window.



FIGURE 30. Installation Complete

20. IWS configuration installation

As of IWS17, a new installation automatically starts when you select “OK” as shown in Figure 30. This installation performs some required changes, but required no user intervention.

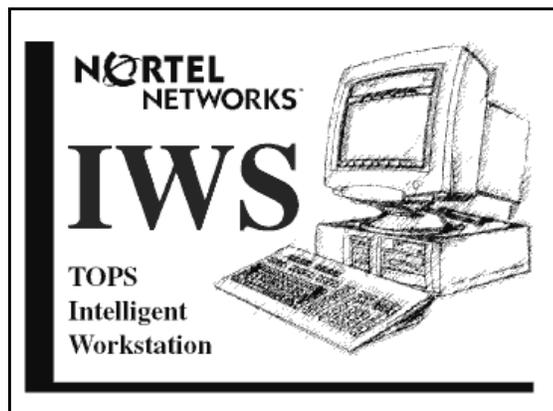


FIGURE 31. IWS Setup Screen

21. Wait until the Setup progress indicator display gives you a 100% indication.

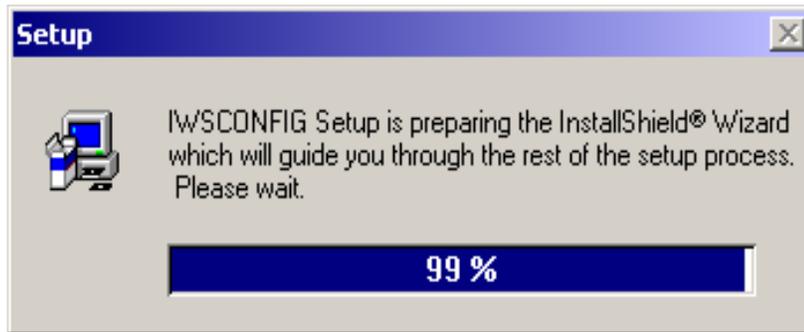


FIGURE 32. Setup progress indicator

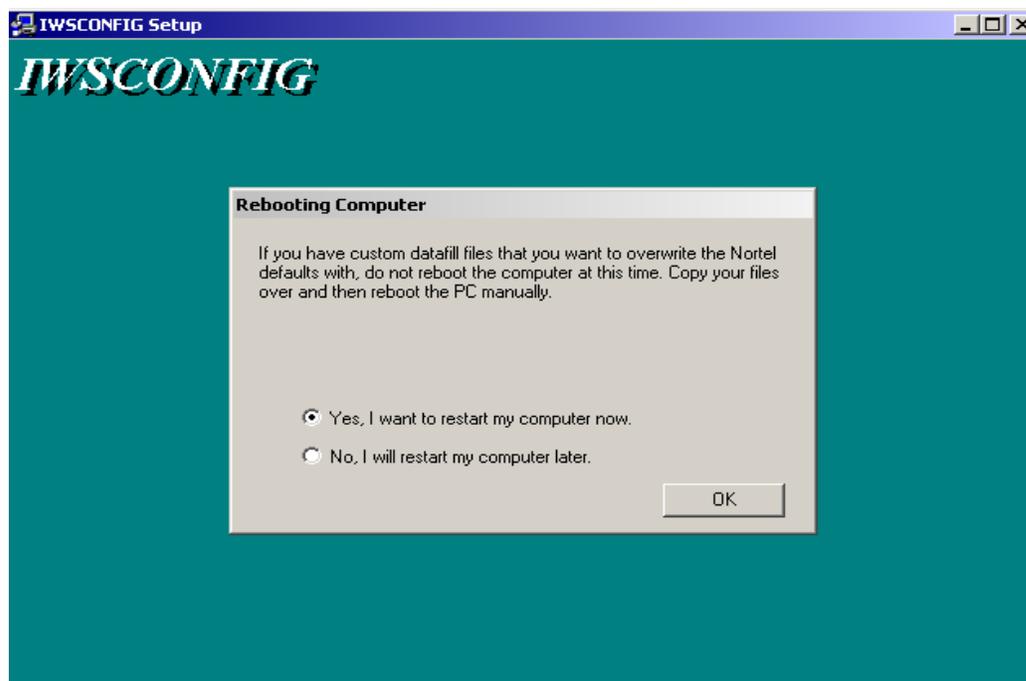


FIGURE 33. Rebooting computer window

22. At this point, the PC is at the Windows desktop.

Please verify that the Power Scheme is set properly for the position. The procedure for doing this is found at “Power Scheme Verification” on page 392.

23. Know the state of your datafill before you reboot.

The IWS position is in one of three possible states:

• **Need to restore datafill from Windows 95 Conversion diskette.**

If this step is part of an initial operating system installation, select the *No, I will restart my computer later* option, then press the OK button.

Return to Section 2.1.9 on page 72 to continue with datafill restoration. Otherwise, continue to Step 24.

- **The datafill is incorrect.**

The position was loaded with IWS software for the first time. Or during an upgrade its datafill was overwritten, or the type of IWS position or the previously loaded IWS applications were changed. **The customized datafill for this IWS position must be checked and possibly modified in order for it to operate properly as an IWS position. Do not reboot the position until the datafill is corrected.** Follow your company's standard procedure for managing customized datafill during upgrades. If you are not familiar with the process of updating datafill, refer to section 5.1, "Checking for Datafill Changes." After updating your datafill appropriately, you may reboot the position.

OR

- **The datafill is correct.**

The position was upgraded to IWS 17.1, its datafill was preserved, and the type of IWS position and the previously loaded IWS applications were not changed during the upgrade. (Any previously customized entries in TBL and LNG files that were replaced must be re-entered in the newer files.) Given all of these constraints, this IWS position should operate as it did before the upgrade, and you may reboot the position.

24. If the position is ready to process calls, return it to service by issuing the RTS command at the MP Level from the DMS switch MAP position.

If the position will be used to RAMP software files to other positions, do not return it to service at this time.



This completes the IWS software installation for an IWS position.

RAMP procedure:

Ramp can only be used to upgrade existing IWS positions. Due to the required operating system change, every IWS PC must be loaded manually with IWS 17.1. After that, RAMP can be used to distribute software. For IWS 17.1, RAMP installs are limited to distributing third party applications or reinstalling IWS 17.1 on top of IWS 17.1. In subsequent releases, RAMP may be used to distribute software to other positions.

To use the RAMP to distribute IWS software, follow the procedure in section 3.4, “Using the RAMP to Upgrade Other IWS Positions.”

Datafill considerations:

Datafill changes that apply to IWS 17.1, and other subjects such as converting an IWS position, are explained in section 5.0.

Refer also to chapters 6.0 and 7.0 for examples of TBL and INI files. And see section 5.0 for information on commands and tools that can be used for maintenance and troubleshooting.

Separate patching process:

Installing IWS patches is a completely separate process from installing IWS base and application software. Chapter 4.0 explains the patching process and provides a procedure to follow. In addition, use the documentation included with each patch to apply the patch. Patches can be downloaded from the Nortel Networks customer website at www.nortelnetworks.com. Place your cursor over “Customer Support,” and select “Software Distribution.” Select IWS from the pull-down menu, and click on “go” to the right of the menu.

3.2 Using the RAMP to Upgrade IWS software on Other IWS Positions

IWS positions can be upgraded from a local on-ring RAMP or from a RAMP located on another LAN. In off-ring RAMP mode, a RAMP-only PC can be used to distribute IWS software, such as NTDA application files, to another IWS position.

Before you start the procedure for distributing software through the RAMP, you must decide how you will handle updating your customized files. You also need to understand the concepts of scripts and of distribution configurations. If you choose to, you can use the RAMP's schedule manager to set this software distribution for a later date and time. In addition, the RAMP's script file editor can be used to create special datafill files for distribution.

Detailed information is provided in *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015.

3.3 Converting IWS Positions

After an IWS position has been loaded with Windows XP Professional and IWS software, there could be a need to convert an IWS position to operate other than what was originally intended. From the following procedures, use the appropriate conversion procedure.

3.3.1 Converting a Position into a DMS Gateway

NOTE: Prior to converting the PC, verify that the X.25 adapter card, the ARTIC driver, and Quadron driver have been installed. These items **MUST** be installed before these steps are attempted.

Use the following steps to set up an IWS operator position to operate as a DMS gateway:

1. **If already at the Windows XP Professional desktop, proceed to step 2. If the IWS base or RAMP application is running, follow substeps a through d to close the application.**
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.
3. Press the R key to open the Run dialog box.
4. At the Open text box, type the word **command** as shown here.

Open: ▼

5. Press the Enter key to obtain an MS-DOS Prompt window.
6. Type the word **makegtwy** as shown here.

```
C:\WINDOWS\DESKTOP>makegtwy
```
7. Press the Enter key to open the makegtwy menu (see Figure 34).
 - a. This menu tells you what command to use depending on what the electrical interface is between this PC and the DMS switch.

The commands are case sensitive. Type **makegtwy RS-422**, or type **makegtwy V.35**, and then press the Enter key. Figure 34 is an example for a V.35 interface.
 - b. Type the word **exit** and press the Enter key to close the MS-DOS Prompt window and return to the Windows XP Professional desktop.

```
C:\WINDOWS\DESKTOP>makegtwy
C:\WINDOWS\DESKTOP>
Usage:MAKEGTY (electrical interface)

    electrical interface = The electrical interface that connects
                          the IWS Gateway positions to the
                          TMS. The only valid values are:
                          RS-422 or V.35

Example: MAKEGTWY RS-422

Note: these parameters ARE case sensitive.
C:\WINDOWS\DESKTOP>makegtwy V.35

C:\WINDOWS\DESKTOP>
C:\WINDOWS\DESKTOP>exit
```

FIGURE 34. Makegtwy

8. Press Ctrl+Esc to open the Start menu.
9. Press key P and use arrow keys to highlight the TOPS IWS and Provisioning Tool options.
10. Press the Enter key to open the IWS Provisioning Tool window.

The following substeps use the IWS Provisioning Tool to modify files MPXINI.INI and MPXNET.INI. (Refer to section 6.0 for more details on INI files. Also, refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015 for more details on use of the provisioning tool.)
 - a. Press Alt+F to open the File menu.

-
- b. Press the O key to obtain an Open window.
 - c. Open file MPXINI.INI in directory C:\WINDOWS to obtain an MPXINI configuration window.
 - d. Press key N to open a Nonregistering Applications window.
 - e. Press key D to choose the Make DMS Gateway button. This action adds entries **WX25.EXE** and **MPXMTCGW.EXE** to the Nonregistering Applications list.
 - f. Press key O to choose the OK button and return to the MPXINI configuration window.
 - g. Press Alt+F to open the File menu again.
 - h. Press the O key to obtain an Open window.
 - i. Open file MPXNET.INI in directory C:\WINDOWS to obtain an MPXNET configuration window.
 - j. Press key C to open a Cluster Layout window.
 - k. Press Alt+S to highlight the cluster Assignment boxes.
 - l. Use keys A, L, N, and S as needed to make an appropriate node assignment to this DMS gateway (GW A or GW B).
 - m. Press key O to return to the MPXNET configuration window.
 - n. Press Alt+F to open the File menu again.
 - o. Press key X (for exit) and then press the Enter key twice to save the above changes in files MPXINI.INI and MPXNET.INI. (It may be necessary to designate an on-ring RAMP position for the LAN before these DMS gateway changes can be saved.)
11. It is important that **file MPXNET.INI** be the same for all positions in a LAN to prevent system problems.

The actual order of the information in the file is not important. But, equivalent information needs to be on each IWS position. This file can be distributed to other positions by way of a RAMP software distribution configuration set. Refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015.
 12. The Quadron qX25 Runtime System and the ARTIC co-processor together provide the X.25 support for IWS DMS gateway positions.

The Quadron tool driver (qCF Device Handler for DOS) can be used to verify and modify X.25 level 2 and level 3 protocol parameters. Refer to section 4.8.1 of this document.
 13. This completes the conversion of this IWS position into a DMS gateway.

If as part of this change, a new IP address is needed for this IWS position, go directly to section 3.4.
-

3.3.2 Converting a Position into a RAMP

Any IWS operator position except a DMS gateway can be set up to also operate as a RAMP.

1. **If already at the Windows XP Professional desktop, proceed to step 2. If the IWS base application is running, follow substeps a through d to close the application.**
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.

Press key P and use arrow keys to highlight first TOPS IWS, and then Provisioning Tool options.

3. Press the Enter key to open the IWS Provisioning Tool window.

The following substeps use the IWS Provisioning Tool to modify files MPXINI.INI and MPXNET.INI. (Refer to section 6.0 for more details on INI files. Also, refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015 for more details on use of the provisioning tool.)

- a. Press Alt+F to open the File menu.
- b. Press the O key to obtain an Open window.
- c. Type `mpxini.ini` in the File Name box. Then use the Tab, Enter, and arrow keys to highlight the windows folder as shown in Figure 35. Finally, press Enter twice to open an edit session for file MPXINI.INI.

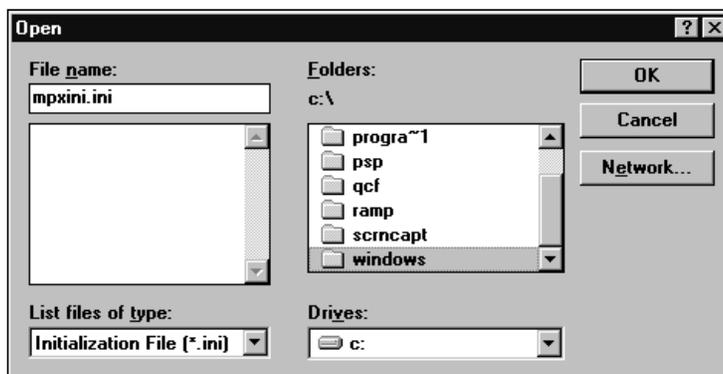


FIGURE 35. Opening MPXINI.INI File

-
- d. Press key N to open a Nonregistering Applications window.
 - e. Press key R to choose the Make RAMP Position OK button. This action adds RAMP.EXE to the Nonregistering Applications list.
 - f. Press key O to return to the MPXINI configuration window.
 - g. Press Alt+F to open the File menu again.
 - h. Press the O key to obtain an Open window.
 - i. Open file MPXNET.INI in directory C:\WINDOWS to obtain an MPXNET configuration window. (Open file MPXNET.INI in the same manner you previously opened file MPXINI.INI in step c.)
 - j. Press key O to highlight the On-Ring RAMP Position command line.
 - k. Use the arrow keys to select the correct node entry for this RAMP. (If this position is node0, for example, set this entry to node0.)
 - l. Press Alt+F to open the File menu again.
 - m. Press key X and then the Enter key as needed to save any changes in files MPXNET.INI and MPXINI.INI.
4. It is important that **file MPXNET.INI** be the same for all positions in a LAN to prevent system problems. The actual order of the information in the file is not important. But, equivalent information needs to be on each IWS position.

This file can be distributed to other positions by way of a RAMP software distribution configuration set. Refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015.

5. This general operator position is now modified to also operate as a RAMP.
Note: Before this RAMP can be used to monitor another IWS position, the ping function of the RAMP must be set to on. This is done by opening the RAMP's Options menu and setting the ping interval (usually set at 15 seconds) in the RAMP Configuration window.

If, as part of this change, a new IP address is needed for this IWS position, go directly to section 3.4.

3.3.3 Converting a Position from Token-ring to Ethernet Network Adapter

For any of the supported platforms, it may be necessary to change the type of LAN connection for an IWS position from token-ring to Ethernet. Use the following procedure to change the position's LAN setup:

1. **Check that the following conditions are true before continuing:**
 - This position is equipped with an appropriate token-ring adapter card or Ethernet hardware as explained in section 1.5 of this document. (Also, refer to the Windows documentation for additional information on network connections.)
 - This position is equipped with the Windows XP Professional operating system and IWS release 17.1 software.
 - Ensure that the position has been put into a busy (INB) state at the PM Level from the DMS switch MAP position.
2. If already at the Windows XP Professional desktop, proceed to step 3. If the IWS base or RAMP application is running, follow substeps to close the application.
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
3. From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu. Select Turn Off Computer, followed by Turn Off.
4. Open the PC up and remove the Token Ring card. Close the PC and install the Ethernet cable.
5. **For NTN51UB and NTN51WB only, the following step applies:**

Read the following substeps carefully before performing them. It is important to restart the PC and then to prevent it from restarting all the way to the Windows desktop. So watch the screen displays closely.

 - a. Press Ctrl+Esc to open the Start menu.
 - b. Press key U to open the Shut Down Windows menu.
 - c. Press key R and then the Enter key to restart the PC, and wait for either the message "MOTHERBOARD" or "F2 = Setup" or "Press <F2> to enter SETUP" is displayed during startup, press the F2 key on the keyboard to open a BIOS setup session. Wait for the PC to restart and repeat steps a, b, and c if you don't press key F2 in time.
 - d. Wait for the main menu to display.

-
- e. Do the following substeps:
 - (1). Press the right arrow key until the Advanced menu is highlighted.
 - (2). Use the down arrow key to highlight the Peripheral Configuration menu, and then press the Enter key.
 - (3). Use the down arrow key to highlight the LAN menu.
 - (4). Set the Integrated Ethernet Interface option as follows:
 - Set the LAN menu to **Enabled**. Use a Shift+Plus command to set the menu.
 - (5). Use key F10 and the Enter key (for Yes) to save the LAN setting. The PC will restart. Go directly to step 8.
 6. **For the Dell GX150 only, the following step applies:**

Read the following substeps carefully before performing them. It is important to restart the PC and prevent it from restarting all the way to the Windows desktop. Watch the screen displays closely.

 - a. Turn on the power switch of the PC, or if the PC is already powered on, select Ctrl+ESC keys.
 - b. Press key U to open the Turn off the Computer menu.
 - c. Press “R” to Restart the machine, and select “Y” or click on Yes.
 - d. Wait a few seconds, and then turn it on again
 - e. When the message “F2 = Setup” is displayed during startup, press the F2 key on the keyboard to open a BIOS setup session.If you don’t press key F2 in time, wait for the PC to restart, and repeat the previous steps.
 - f. Open the Integrated devices and turn ON the Network Interface Controller.
 - g. Press ESC.
 - h. The “Save Changes and Exit” window appears.

Note: If this window does not appear, you have not made any changes. If you intended to, start the procedure over at Step 1.
 - i. Press Enter.
 7. Wait for the PC to restart with the new settings. Hold down the Ctrl key down to keep the IWS software from starting.

The OK button is located in the lower section of the Network window, so it may be partially hidden behind the Windows taskbar.

If an error message appears, record the message for later, and press the Enter key to continue with a restart to the Windows desktop or to the IWS Logo Window. Check the WINXP HOSTS file under **C:\windows\system32\drivers\hosts\etc**, and theMPXINI.INI, and MPXNET.INI files under **C:\windows** to ensure any IP address or hostname changes are reflected in these files. Continue these checks until all files are properly datafilled and the PC restarts to the IWS logo window.

Use the Start menu to restart this PC and wait for the PC to restart to the IWS logo window.

Note: For information on using the IWS provisioning tool to edit files, refer to the *TOPS IWS RAMP and Provisioning User's Guide*. The Windows text editor WordPad or Notepad can also be used.



FIGURE 36. IWS Logo Window

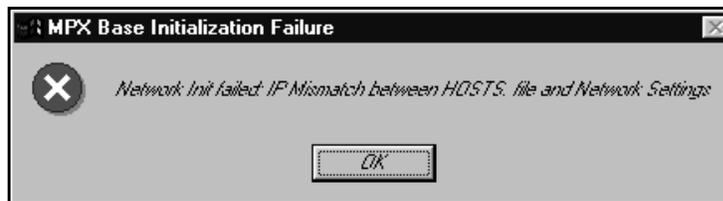


FIGURE 37. Example of an Initialization Error Message

8. If a changed or new IP address is needed for this IWS position, go directly to section 3.4.

3.3.4 Converting a Position from Ethernet TDM to Ethernet Voice Over IP Positions

It may be necessary to change the type of position from using TDM to IP Positions. Use the following procedure to change the position's voice setup:

1. **Check that the following conditions are true before continuing:**
 - This position meets the minimum hardware requirements as specified in “IWS Platform Hardware” on page 23.
 - This position is equipped with the Windows XP Professional operating system
 - Ensure that the position has been put into a busy (INB) state at the PM level
2. Shut down the computer by following these substeps.
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)

With IWS completely shut down, follow substeps a through b:

- a. Press Ctrl+Esc to open the Start menu.
- b. Press the U key to open the Shut Down Windows window.
3. Disconnect the power and cabling on the back of the PC that connects to the Nortel Audio card, and the ARTIC card.
4. Open the PC up and remove any existing Nortel Audio cards and ARTIC cards. Close the PC up and reconnect the power cable.
5. Follow the position specific instructions for the BIOS:

For NTNX51WB only

- a. Power the PC on.
- b. Wait for either the message "MOTHERBOARD" or "F2=Setup" or "Press <F2> to enter SETUP" is displayed during startup, press the F2 key on the keyboard to open a BIOS setup session.
- c. Wait for the main menu to display. Perform the following sub steps:
 - (1) Press the right arrow key until the Advanced menu is highlighted.
 - (2) Use the down arrow key to highlight the Resource Configuration menu, and then press the Enter key.
 - (3) Use the down arrow keys to highlight any memory range or IRQ that currently shows itself as being "Reserved".

- (4) Press the Space key to toggle the entry to show "Available".
- (5) Repeat steps 3 & 4 until all entries show "Available"
- (6) Use key F10 and the Enter key (for Yes) to saves these settings. The PC will restart.

For the Dell GX150 only

- a. Power the PC on.
- b. Wait for the message "F2=Setup" to enter SETUP" is displayed during startup, press the F2 key on the keyboard to open a BIOS setup session.
- c. Wait for the main menu to display. Perform the following sub steps:
 - (1) Press the down arrow until the IRQ Reservations menu is selected. Press the Enter key.
 - (2) Use the down arrow keys to highlight any IRQ that currently shows itself as being "Reserved".
 - (3) Press the Space key to toggle the entry to show "Available".
 - (4) Repeat steps 3 & 4 until all entries show "Available"
 - (5) Press the ESC key and a new menu appears. Select the option for "Save Changes and Exit", press the Enter key. The PC will restart.

For the Dell GX270 only

No changes are required for the GX270.

6. Hook up the DA60 headset to the PC. Select an available USB slot on either the front or back of the PC and insert the connector.
7. The Plug-N-Play software of Windows XP Professional should detect the new hardware and install the appropriate software driver for it. Verify that the correct firmware version is installed. Refer to "DA60 Firmware" on page 504.
8. As a result of converting the position from TDM to IP, it is required that the Nortel IWS software has to be reinstalled. Follow the procedure as documented in section 3.1, "Installing IWS 17.1 from the IWS CD," specifically the screen in Figure 19 on page 77. Make sure to select IP Position now instead of TDM Position when the install first starts. Be sure to select the option to Preserve your datafill. Not all of it will work as a result of the conversion, but that is discussed in the next step.

-
9. As a result of reinstalling the IWS software as documented in the previous step, it is also required that all patches be reinstalled as well. Information on the status of all patches and a description of the problems fixed by each patch are available on the Nortel Networks customer website, at **www.nortelnetworks.com**.
 10. After turning the IWS position into an IP Position, the existing values in the MPXNET.INI and parts of the MPXINI.INI (audio section) files need to be revised. In addition, there is a new file, POSINFO.INI that needs to be setup as well. Please see sections “MPXNET.INI” on page 289, “MPXINI.INI” on page 281, and “POSINFO.INI” on page 296 for more details on properly provisioning these files.

3.4 Changing the Network Settings of an IWS Position

It may be necessary to change or reset the IP address of an IWS position (because of a LAN setup change for example).

1. **If already at the Windows XP Professional desktop, proceed to step 2. If the IWS base or RAMP application is running, follow substeps a through d to close the application.**
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. Press Ctrl+Esc to open the Start menu.
3. Press the S key, and then press the Enter C to open the Control Panel.

- Use the arrow keys to highlight Network Connections, and then press the Enter key to open the Network Connections box.

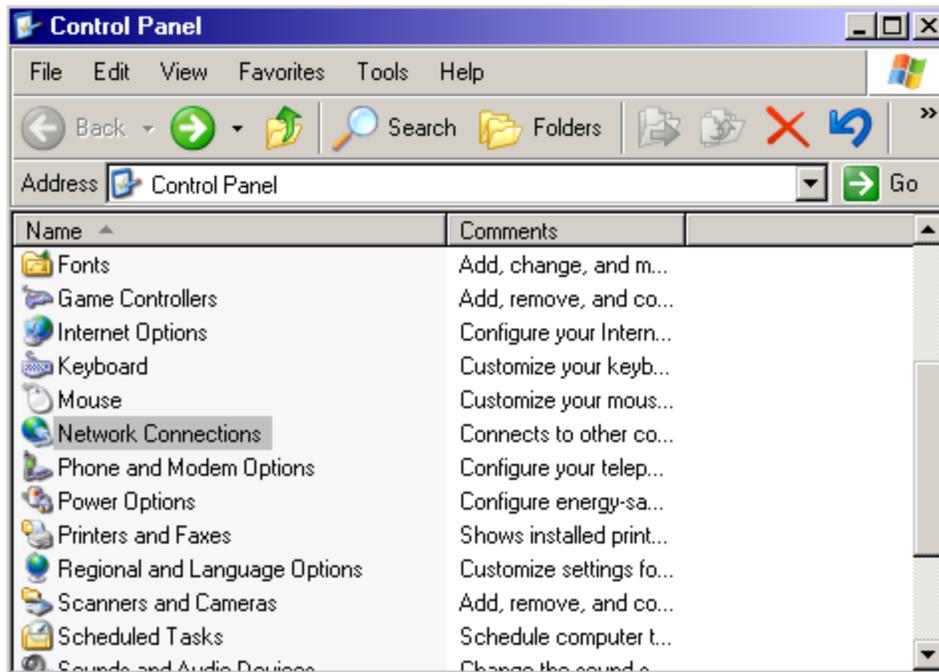


FIGURE 38. Control Panel highlighting Network Connections

- Use the Tab and arrow keys to open the Local area Connections icon.

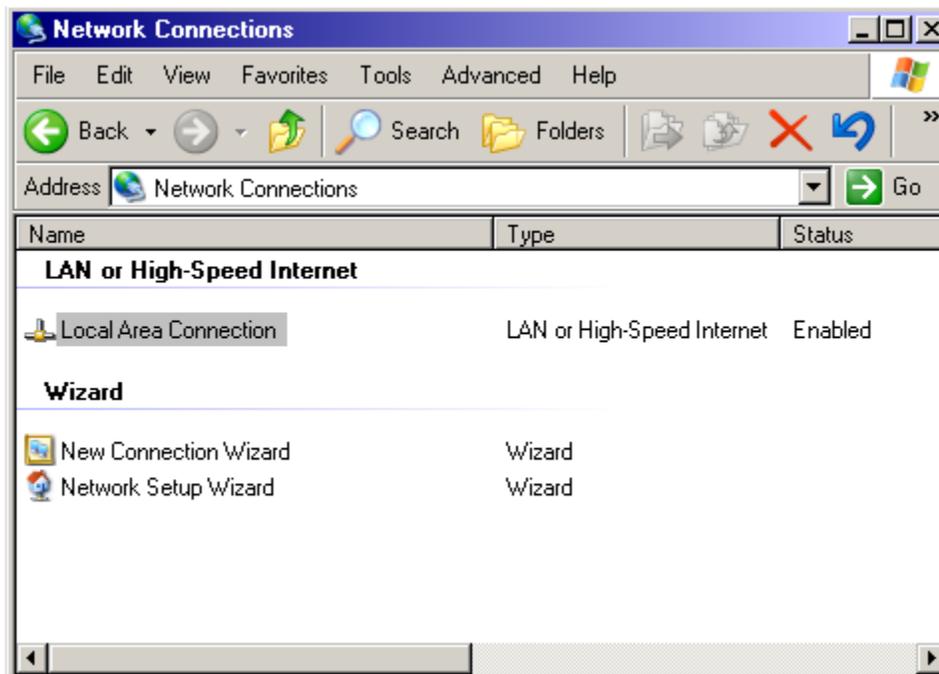


FIGURE 39. Local Area Connection location

6. Press the Enter key to display the Local Area Connection Status box.

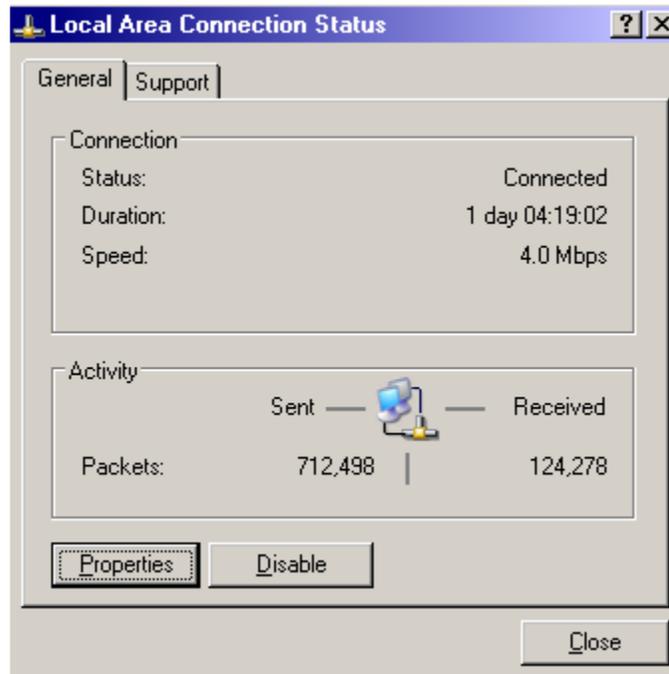


FIGURE 40. Local Area Connection Status box.

7. Tab to the Properties box and press Enter.

8. Select the Internet Protocol (TCP/IP) option.

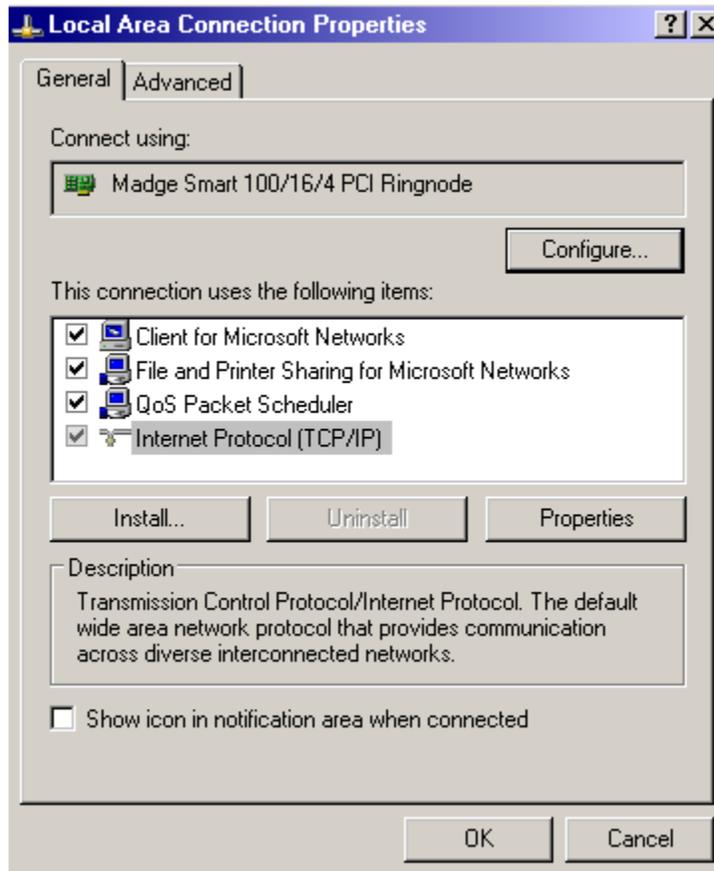


FIGURE 41. Local Area Connection Properties box

9. Press the Properties button to display the Internet Protocol (TCP/IP) Properties window.

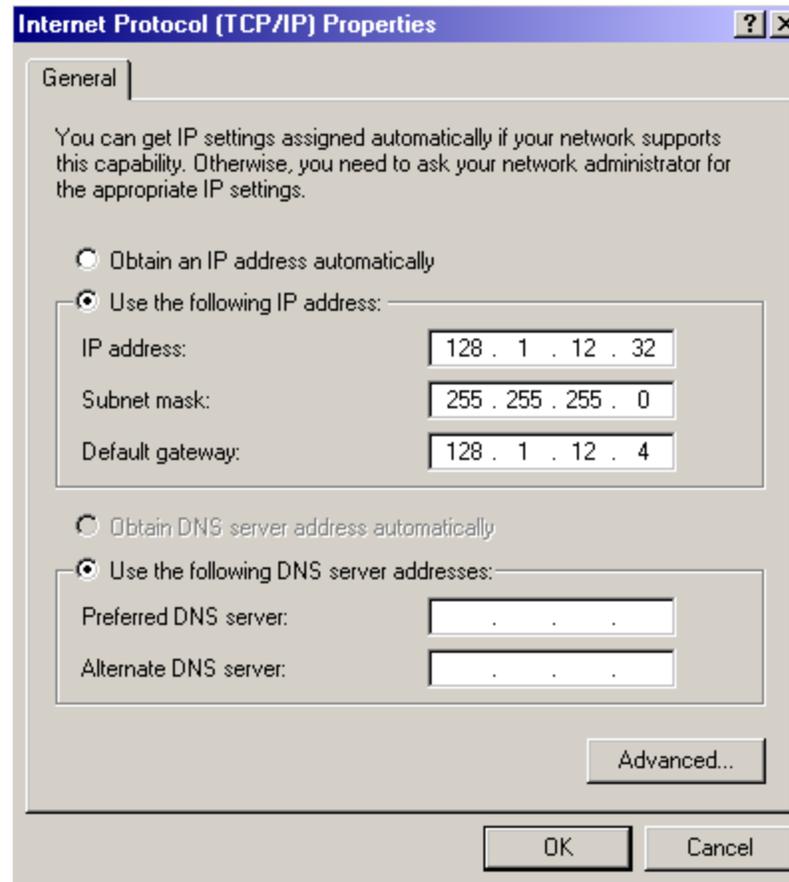


FIGURE 42. Internet Protocol (TCP/IP) Properties window

Type in the IP address of the IWS position using the following format

nnn.nnn.nnn.nnn

where “n” is a segment of the IP address, and “.” separates two segments.

As an example, an IWS position with the IP address 128.1.12.32 must have the computer name 128x1x12x32.

The subnet mask may also need to be updated, and can also be done in this window. It is recommended to verify the settings for the gateways (and possibly add more). Select the Advanced button and proceed to step 10.

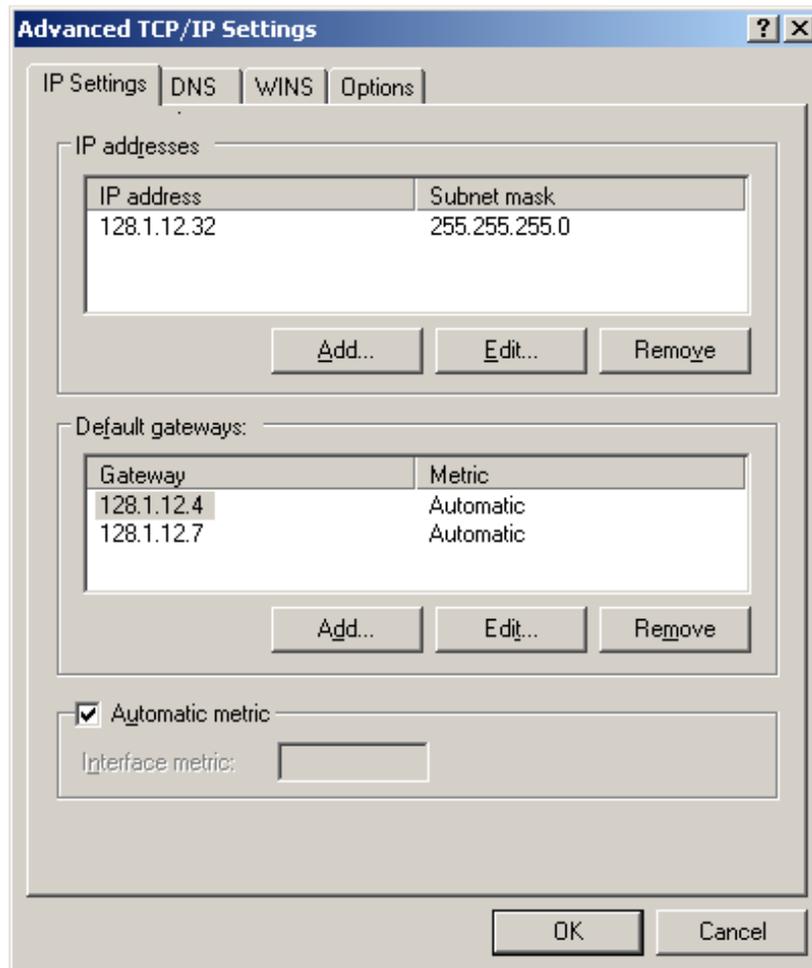


FIGURE 43. Advanced TCP/IP Settings window

10. Routers (called gateways by Windows software) are used to access entities not on the local LAN. These may include external databases like DA or CCDB. It may also include Internet access for Web pages. These are not the IWS gateway positions that connect to the DMS switch. The routers need to be identified in the Installed gateways list box. If the IPs are listed correctly, and the Metrics are set to automatic, go directly to the next step. Otherwise, continue with this step to identify the routers.

First, identify the routers that access the external entities by entering the IP addresses of the LAN-segment connections (not the WAN-segment connections). The addresses shown here are only examples, the actual address you enter will be different. Note that each of the two routers must route to both the DA server and the CCDB server. After the IP addresses for the DA and CCDB routers are entered, then the addresses of any other routers can be entered.

If any of the existing gateways are using a metric other than Automatic, select them and then press the Edit Button. Change the metric to Automatic, and then press the OK button.

Each new IP address is entered as follows:

- a. Tab to the New gateway address box and type in the IP address, making sure that all are set to use the Automatic metric.
- b. Press Alt+A. Check that the added IP address is listed in the Installed gateways box.
- c. Perform these steps as needed up to five times.

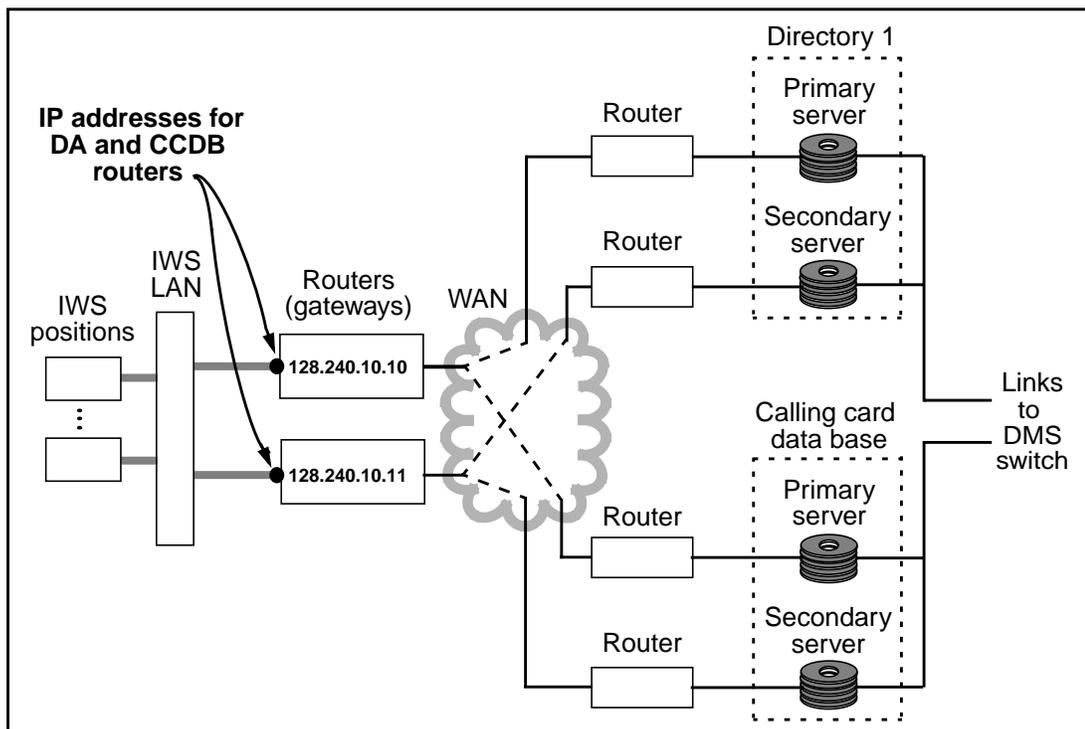


FIGURE 44. IP Addresses for DA and CCDB Routers

11. After changing the IP address, select OK.
12. Return to the Control Panel to access the Systems properties box. This is required to change the computer's name.
13. In the Systems properties box, select the tab for Computer name.



FIGURE 45. Computer Name tab in the System Properties window

14. Select the Change button to display the Computer Name Changes window.



FIGURE 46. Computer Name Changes window

15. Type in new Computer name. It must exactly match the IP address entered in Step 9.
16. Select OK.
Note: if the OK button remains grayed out, nothing has been changed. If you replace the IP address with the same number, it will remain grayed out.
17. A message appears alerting the user that the computer must be restarted for the change to take effect. Select OK.

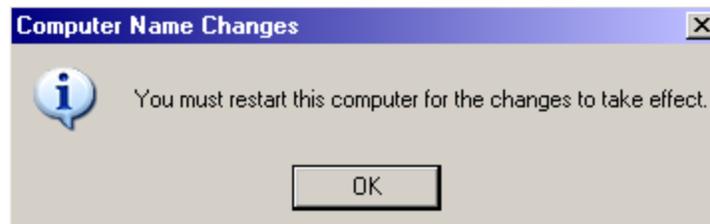


FIGURE 47. Name Change restart alert

18. After clicking ok, the system returns you to the System Properties menu.



FIGURE 48. System Properties window denoting changes

19. Note the new message at the bottom of the screen:

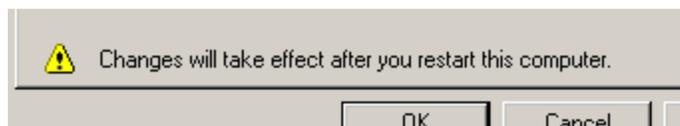


FIGURE 49. Change alert on the System Properties window

20. Select OK.

21. The system will prompt you to restart the computer.

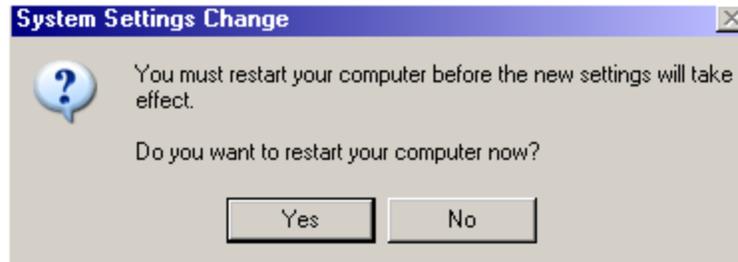


FIGURE 50. Restart prompt

22. Once you restart the computer, the IP address of the IWS Position will be changed.

3.5 Returning an IWS Position into Service

Use the following steps to return an IWS position into service.

1. **If already at the Windows XP Professional desktop, proceed to step 2. If the IWS base or RAMP application is running, follow substeps a through d to close the application.**
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.
3. Press the U key to open the Shut down Window.
4. Press the R key to highlight the Restart the computer? button, then press the Enter key to restart the PC.
5. Use standard DMS switch maintenance commands to verify the following in-service states:
 - ISG data links: A period (.) is used to indicate an in-service state.
 - TPC: At the PM level, an in-service state is posted as **InSv**.
 - Positions: At the PM level, an in-service state is posted as **RES**.

3.6 Creating Datafill Backup Disks

Once IWS positions are loaded with and are operating properly with IWS 17.1 software under a specific site environment, a set of backup datafill disks that contain the current IWS datafill values and settings should be made and kept in a secure place for future use. Because the IWS datafill will vary between the types of operator positions (a general operator position verses a DMS gateway or RAMP), a separate set of backup disks can be made for each type of position, or separate directories can be set up for each type of position on one set of disks. The following procedure is just one way of providing for backup IWS datafill.

1. **Place a formatted 1.44MB floppy disk in the A drive.**
2. Create directories on the backup disk.
 - a. At the C:\> prompt type **md a:\windows** and then press the Enter key to create directory path A:\WINDOWS on the backup disk.
 - b. At the C:\> prompt type **md a:\mpxbase\datafill** and then press the Enter key to create directory path A:\MPXBASE\DATAFILL on the backup disk.
3. To copy files to the datafill disk do the following from the C:\ prompt:
 - a. Type **Copy C:\windows\system32\drivers\hosts\etc\hosts a:\windows**.
 - b. Each TOPS IWS position type (general, gateway and RAMP) has a uniquely configured variation of the MPXINI.INI file. Therefore there should be three variations of this file on the datafill disk. Since three files with the same name cannot exist in a common directory on the datafill disk, use the following (or similar) naming method to maintain these files:
 - For a general position type
Copy C:\windows\mpxini.ini a:\windows\mpxini.gen
and then press the Enter key.
 - For a gateway position type
Copy C:\windows\mpxini.ini a:\windows\mpxini.gty
and then press the Enter key.
 - For a RAMP position type
Copy C:\windows\mpxini.ini a:\windows\mpxini.rmp
and then press the Enter key.
 - c. Type
Copy C:\windows\mpxnet.ini a:\windows
and then press the Enter key.
 - d. Copy any user-modified datafill files to the datafill disk by typing
 - **Copy C:\mpxbase\datafill\<filename.ext> a:\mpxbase\datafill**

and then press the Enter key.

- Repeat this step until all user-modified datafill files are copied to the disk.
- e. Copy any other customer-modified IWS files to the appropriate locations on the datafill diskette. Store the datafill disk (or set of disks if more than one disks is required) in a safe location for future reference.

3.7 Enabling the Audible Alert External WAV Device

IWS plays an audible tone to warn customer service experts, service assistants, and in-charge managers about conditions in the traffic office that require prompt attention. Before Release 17.1, IWS positions could activate the audible alert only through a standard on-board PC speaker, with its limited range of volume.

Now, in addition to the current audible alarm function, Release 17.1 provides the option of sounding the tone notification through a set of external speakers connected to the position. This additional option applies only to IWS 17.1 and the following PC types:

HP Compaq DC5000
Dell Pentium IV GX270
Dell Pentium III GX150
NTNX51WB (Pentium III, Intel 600 MHz)
NTNX51UB (Pentium II, Intel 350 MHz)

This new arrangement allows for a broader range of volume but does not change the events that trigger the tone, the meaning of the tone, or the actions required in response to the tone.

The sound of the standard 600 Hz tone is replicated in a default WAV file, "sdefault.wav," located in the mpxbase software. On-board Soundblaster-compatible WAV device hardware is required.

By default, the audible alert is played through the standard onboard PC speaker. The steps in this section only apply if it is desired to override the default functionality to utilize an external WAV device for the audible alert.

Both TDM positions and IP positions support the external WAV device for the audible alert, but some important differences exist between the two in terms of configuration.

For TDM positions, the audible tone WAV device, if enabled, is the only Audio Sound playback and recording device. It is the system default Audio Sound playback and recording device.

For IP positions, because the required Plantronics DA60 audio device/headset is a WAV device which plays call arrival tone WAV files to the operator, care must be taken to avoid conflicts between the two audio devices. The Plantronics DA60 audio device/headset must be configured as the system default Audio Sound playback and recording device, as well as the system default Voice playback and recording device.

To implement this method of generating the audible alert, you must complete the following tasks:

- Connect external speakers to the PC.
- Enable the WAV device hardware setting in the BIOS software and load the sound driver software.
- Configure Windows software for controlling volume and disabling irrelevant sounds.

- Configure the MPXINI.INI file in the IWS base software.
- Update the DMS switch TOPS table TQOPROF to enable the audible alert.

3.7.1 Connecting External Speakers

To make the alert tone audible, you must connect commercially available, AC-powered PC speakers to the on-board WAV device external ports. Nortel Networks does not supply these speakers; the operating company must supply them.

Connect the speakers to the speaker (or “line out”) port shown in Figure 53.

**DANGER****Risk of electrocution**

Before connecting the speakers, turn off power to both the speakers and the PC.

**WARNING****Damage to equipment**

The line-out connector is designed to power headphones or amplified speakers only. Connecting passive (non-amplified) speakers to this output may cause poor audio quality or damage to the motherboard.

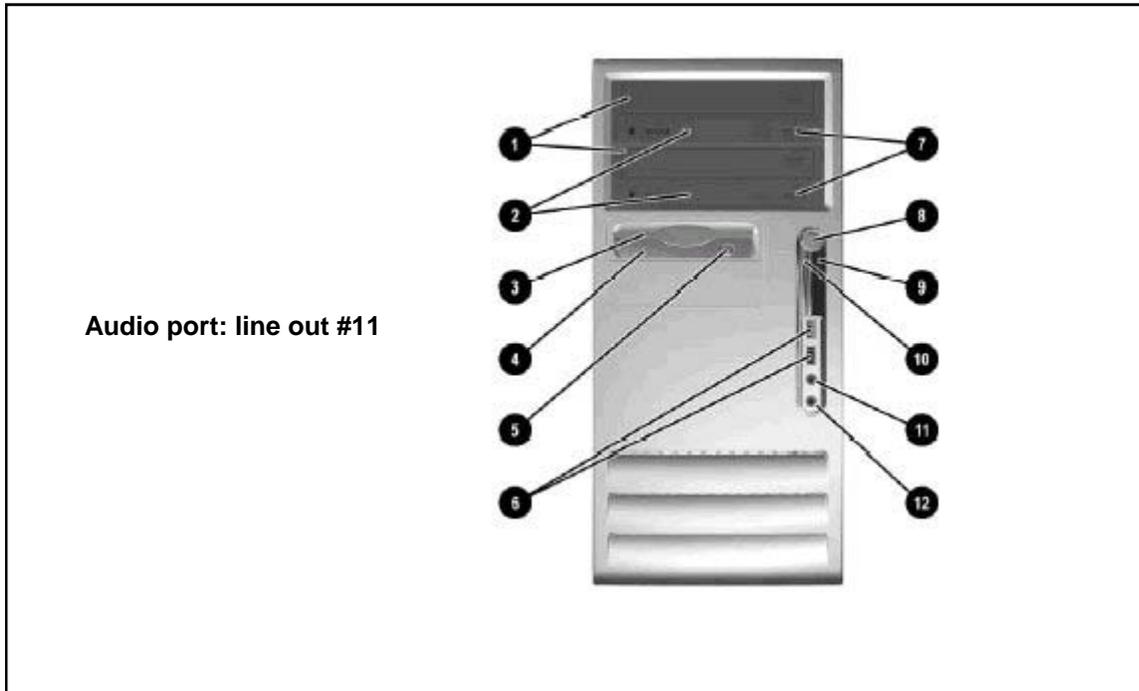


FIGURE 51. Ports for external speakers on HP Compaq DC5000

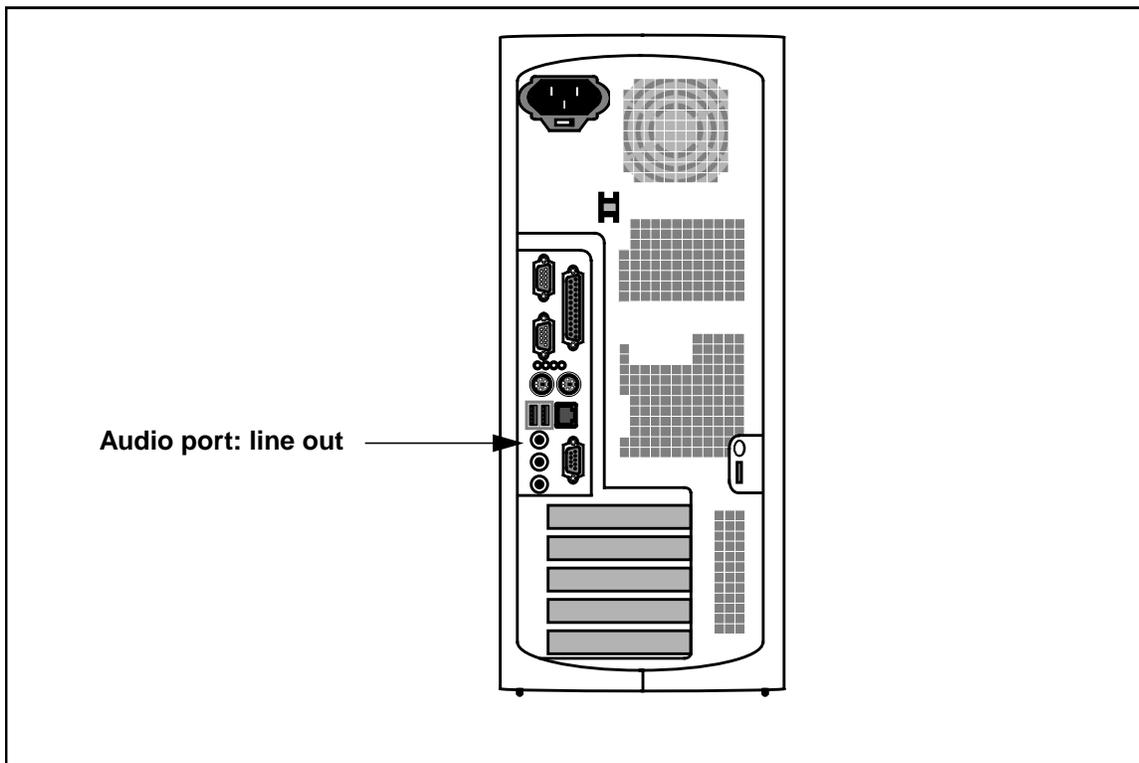


FIGURE 52. Port for external speakers on Dell GX150/270

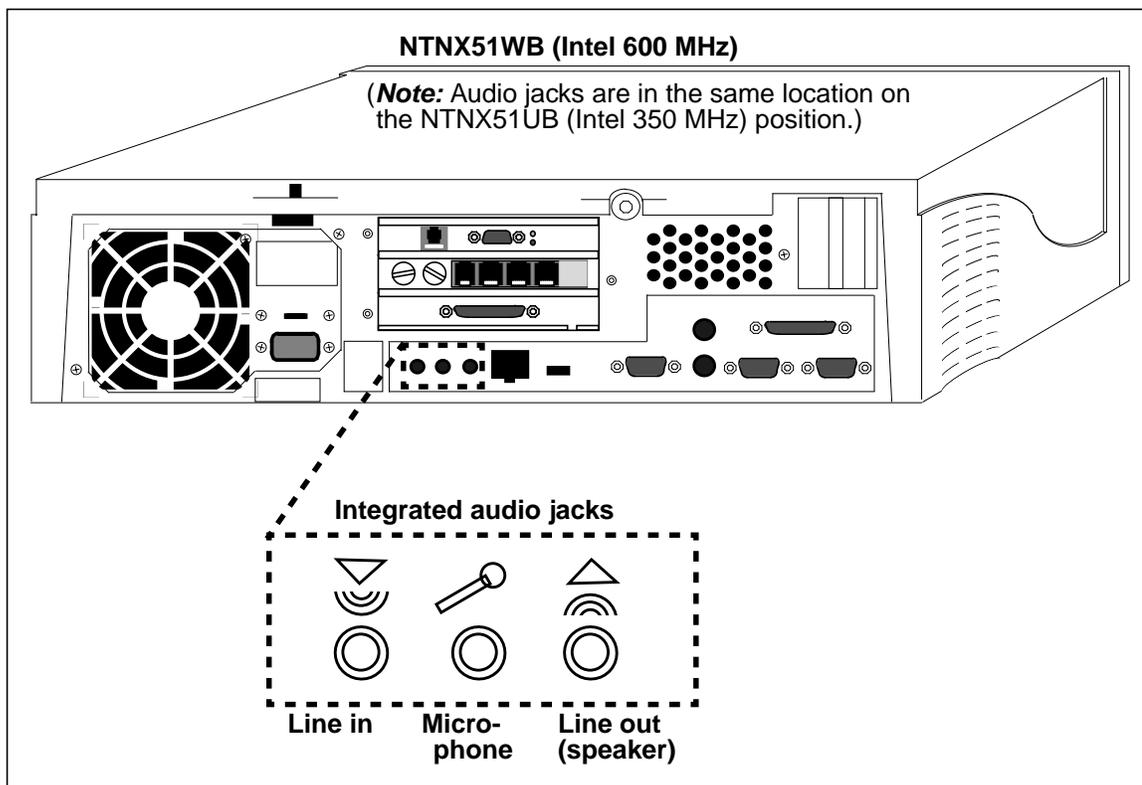


FIGURE 53. Ports for external speakers on NTNX51WB

3.7.2 Enabling WAV Device BIOS and Loading Sound Driver

This section covers two related tasks: enabling the WAV device in the BIOS software and loading the sound driver software.

By default, the on-board WAV device hardware of the supported IWS position platform is disabled. This hardware must be enabled through the BIOS settings.

The following sections explain how to enable the WAV device. Refer to the appropriate section for your hardware platform.

3.7.2.1 For the NTNX51UB and NTNX51WB

Use the following procedure to enable the WAV device and load the sound driver software.

1. **This is an optional procedure for loading the WAV-file driver. Use this procedure only after you have performed Blocks A, B, C, D, F, and G in section 2.0, “Windows XP Professional Software.” Also, be aware that this procedure applies only to IWS 17.1 and the following PC types:**

NTNX51WB (Pentium III, Intel 600 MHz)

NTNX51UB (Pentium II, Intel 350 MHz)

2. Press Ctrl+Esc, U, R, and Enter to restart the PC. Look for the splash screen MOTHERBOARD to appear. Wait a second and then press the F2 key on the keyboard to open a BIOS setup session.

If you don't press key F2 in time, wait for the PC to restart, then repeat this step.

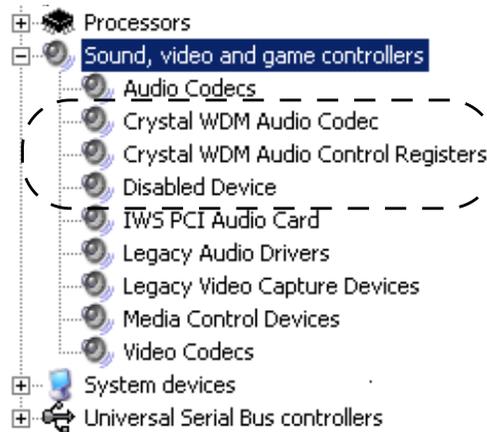
3. Use the right arrow key to highlight the Advanced menu.
4. Use the down arrow key to highlight the Peripheral Configuration menu.
5. Press Enter and then use the down arrow key to highlight the Audio option.
This Audio option must be enabled to allow the use of a WAV file for an audible alert tone.
6. Press the minus key to change this option from Disabled to Enabled.
7. Press the Esc key to exit the Peripheral Configuration screen.
8. Press the F10 key to display a Setup Confirmation prompt.
9. Press Enter for Yes to save and exit.

The PC will continue to restart with the new settings.

Note: If you want to review the configuration in the Device Manager window, go to the next step. (If you don't want to check for the presence of this driver, skip to step 21.)

10. Press Ctrl+Esc, S, and Enter to open the Control Panel.
11. Arrow to highlight the System icon in the Control Panel.
12. Press Enter to open the System Properties window.
13. Arrow to outline the word Hardware at the top of the window.
14. Tab to the Device Manager button.
15. In the Device Manager window, tab to outline the computer name.
16. Arrow down the list to "Sound, video, and game controllers."
17. If the menu is not already open, press the right arrow to open it. You should see the devices as listed in Figure 54.

FIGURE 54. Final Check for Crystal



18. Press Alt+F and then X to close the Device Manager window.
19. Tab to OK and press Enter to close the System Properties window.
20. Press Alt+F and then C to close the Control Panel window.
21. Use the Start menu to restart the PC.

The WAV-file driver for the audible alert option is now loaded. The next task is to configure the Windows software to support the WAV file.

3.7.2.2 For the Dell GX150

For the Dell GX150 only, use the following optional procedure to enable the WAV device and load the sound driver software.

1. **After verifying that RAMP and BASE are off, restart the PC from the Windows desktop by pressing Ctrl+Esc, U, R, and selecting Enter to restart. Wait for the F2 to appear on the screen and then press the F2 key on the keyboard to open a BIOS setup session.**

If you don't press key F2 in time, wait for the PC to restart, then repeat this step.

2. Use the down arrow key to highlight Integrated Devices, and press Enter.
3. Be sure the Sound item is highlighted. Press the spacebar to select it.
4. Press the Escape key twice.
5. Press Enter to save your changes.

Pressing Enter saves your changes and then causes the PC to reboot with the new settings.

If you want to review the configuration in the Device Manager window, go to the next step.

6. To review the setting while the PC is rebooting, hold down the Ctrl key to keep BASE from loading. Select Ctrl+ESC for the Start menu. select Settings, and then select Control Panel.
7. Press Enter to open the System Properties window.
8. Use the arrow key to highlight the word Hardware at the top of the window.
9. Tab to the Device Manager button.
10. In the Device Manager window, tab to highlight the computer name.
11. Arrow down the list to “Sound, video, and game controllers.”
12. If the menu is not already open, press the right arrow to open it. You should see the device as listed in Figure 55.

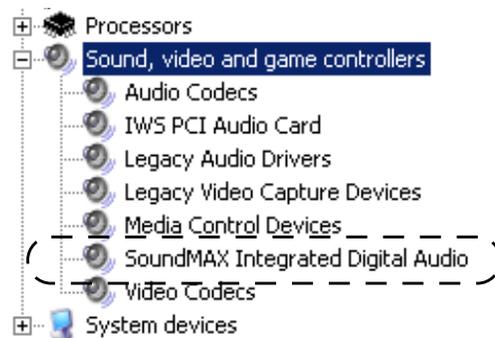


FIGURE 55. Final Check for SoundMAX

13. Press Alt+F and then X to close the Device Manager window.
14. Tab to OK and press Enter to close the System Properties window.
15. Proceed to section 3.7.3.

The WAV-file driver for the audible alert option is now loaded. The next task is to configure the Windows software to support the WAV file.

3.7.2.3 For the HP Compaq DC5000

For the HP Compaq DC5000 only, use the following optional procedure to enable the WAV device and load the sound driver software.

1. **After verifying that RAMP and BASE are off, restart the PC from the Windows desktop by pressing Ctrl+Esc, U, R, and selecting Enter to restart. Wait for the F10 to appear on the screen and then press the F10 key on the keyboard to open a BIOS setup session.**
If you don't press key F10 in time, wait for the PC to restart, then repeat this step.
2. When the language selection menu appears, select “English”.

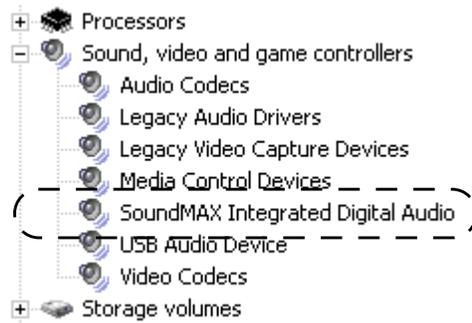
-
3. Press Enter.
 4. From the main menu, use the right arrow to select “Security”
 5. Use the down arrow key to select, “Device Security”.
 6. Press Enter.
 7. Use the down arrow key to select, “System Audio”.
 8. Use the right arrow key to change the selection from “Device hidden” to “Device available”.
 9. Press the F10 key to accept the change.
 10. Use the left arrow key to select “File”.
 11. Use the down arrow to select “Save Changes and Exit”.
 12. Press Enter.
 13. When the “Save Changes and Exit” window appears, press the F10 key to accept.

The PC has to be rebooted in order for the next setup step to be available. If you try to combine all these steps without a reboot in between, the “Intel Audio device” will not be seen in the PCI Devices menu.

14. While the PC is rebooting, press the F10 key to open another BIOS setup session.
 15. From the main menu, use the right arrow to select Advanced.
 16. Use the down arrow to select PCI Devices, and press Enter.
 17. Press any key to continue on pass the Help screen that appears.
 18. From the PCI Devices menu, use the down arrow to select “Intel Audio device”.
 19. Press the right arrow until “Enable” appears.
 20. Press F10 to Accept.
 21. Press the left arrow until File is selected.
 22. Use down arrow to select Save Changes and Exit, press Enter to select.
 23. When Save Changes and Exit confirmation window appears, press F10.
Pressing F10 saves your changes and then causes the PC to reboot with the new settings.
- Note:** If you want to review the configuration in the Device Manager window, go to the next step. (If you don’t want to check for the presence of this driver, skip to step 35.)
24. Press Ctrl+Esc, S, and Enter to open the Control Panel.
 25. Arrow to highlight the System icon in the Control Panel.
 26. Press Enter to open the System Properties window.
 27. Arrow to outline the word Hardware at the top of the window.

28. Tab to the Device Manager button.
29. In the Device Manager window, tab to outline the computer name.
30. Arrow down the list to “Sound, video, and game controllers.”
31. If the menu is not already open, press the right arrow to open it. You should see the devices as listed in Figure 54.

FIGURE 56. Final Check for SoundMAX



32. Press Alt+F and then X to close the Device Manager window.
33. Tab to OK and press Enter to close the System Properties window.
34. Press Alt+F and then C to close the Control Panel window.
35. Use the Start menu to restart the PC.

The WAV-file driver for the audible alert option is now loaded. The next task is to configure the Windows software to support the WAV file.

3.7.3 Configuring Windows Software

To configure Windows software for WAV file support, you must set the system default volume level.

3.7.3.1 Setting the System Default Volume Level for TDM Positions

Use the following procedure to set the system default volume.

1. **Press Ctrl+Esc, S, and Enter to open the Control Panel window.**
2. Inside the Control Panel window, arrow to the Sound and Audio Devices icon.
3. Press Enter to open the Sound and Audio Devices icon.
4. Select the Audio Tab. *If your hardware platform is the NTN51UB or NTN51WB, make sure the Sound Playback Default Device window shows Crystal WDM Audio. If your hardware platform is the Dell GX150 or GX270, make sure the Sound Playback Default Device window shows SoundMAX Digital Audio.*

5. Select the Volume Tab.
6. Tab to the Speaker Volume button and press Enter.
7. Use the tab key to move to the appropriate speaker (Left or Right). Use the arrow key to change the volume indicator along the line from Low to High, until you have adjusted the volume appropriately.
8. Tab to the Apply button and select OK.

3.7.3.2 Configuring System Audio Device Settings for IP Positions

Use the following procedure to set the system Audio and Voice Device settings. The Plantronics DA60 Audio device/headset needs to be installed, and the firmware version verified through RAMP (see “DA60 Firmware” on page 504), prior to performing these steps.

1. **Press Ctrl+Esc, S, and Enter to open the Control Panel window.**
2. Inside the Control Panel window, arrow to the Sound and Audio Devices icon.
3. Press Enter to open the Sound and Audio Devices icon.
4. Select the Audio Tab. Ensure that “PLTDA60” is displayed as the Sound Playback Default Device, as well as the Sound Recording Default Device. If they are not, select them and press the Apply button. *If your hardware platform is the NTN51UB or NTN51WB, make sure the Sound Playback Default Device window shows the Crystal WDM Audio as a selectable option, but do not select it as the Default Device. If your hardware platform is the Dell GX150, Dell GX270, or HP Compaq DC5000, make sure the Sound Playback Default Device window shows the SoundMAX Digital Audio as a selectable option, but do not select it as the Default Device.*
5. Select the Voice Tab. Ensure that “PLTDA60” is displayed as the Voice Playback Default Device, as well as the Voice Recording Default Device. If they are not, select them and press the Apply button.
6. Select the Volume Tab.
7. Tab to the Speaker Volume button and press Enter.
8. Use the tab key to move to the appropriate speaker (Left or Right). Use the arrow key to change the volume indicator along the line from Low to High, until you have adjusted the volume appropriately.
9. Tab to the Apply button and select OK.

3.7.4 Configuring MPXINI.INI File Parameter in Provisioning Tool

The IWS software provides an option for IWS to support use of the PC’s on-board WAV device. The audio section of the MPXINI.INI file contains parameter:

WavDeviceSupported=0. Use the IWS provisioning tool to change the value to 1.

For detailed information about the MPXINI.INI file, see chapter 6.0, “Initialization (INI) Files.” For information on how to use the provisioning tool, refer to *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015.

3.7.5 Updating DMS switch TOPS table TQOPROF

The DMS switch table TQOPROF is used to assign QMS call selection and service profiles to operator numbers. Table TQOPROF must be set up to allow the audible tone to arrive at the operator position. Refer to *DMS-100 Translations Guide* and *Data Schema* for information about changing the datafill in table TQOPROF.

3.8 Mouse Enable/Disable

Although in general the use of a mouse is not recommended, it could prove helpful at times to enable and later disable the use of a mouse at an IWS position. If you intend to use a mouse, be aware of the two following special considerations:

- Clicking the mouse in certain areas causes the active window to gray out and lose focus. Softkeys do not respond, and any keyboard keystrokes associated with the window may be inactivated. To regain focus, move the cursor over the window where you were working and click the mouse.
- Special care must be taken if the mouse is used to cut and paste.

3.9 RAMP Printer Setup

Refer to your printer documentation or follow the printer installation instructions in *Microsoft Windows User's Guide for the Microsoft Windows Operating System* to connect a mouse or printer to a RAMP. Also, in order to print screen capture files through the Print/Save Screen feature, the printer must have bitmap printing capabilities. (Refer to *TOPS IWS Base HMI Application Guide*.)

4.0 Installing and Removing IWS Patches

IWS patching allows software fixes to be delivered without requiring the re-installation of a complete IWS software load. Patches can be applied and removed with only a minimal disruption of service.

Information on the status of all patches and a description of the problems fixed by each patch are available on the Nortel Networks customer website, at **www.nortelnetworks.com**. To access patches and information, follow these steps:

- Click on “Software Downloads” under the “Support” heading.
- Click on the “I” for “IWS” under Alphabetically, or select the “Directory and Operator Service” option under Products.
- Locate the “IWS - Intelligent Workstations Info Center” category and select “Software.”
Note: If you are a registered user and expect to access this directory again, select the “Add to My Products” link for easier access during subsequent visits.
- After the system has returned the items available for download, scroll down to the section of interest. Click on the pertinent link.

This chapter includes instructions on how to apply, remove, and display details about IWS patches.

For additional information on IWS and IWS patches, please refer to the IWS Users Community website located at www.MyNortelNetworks.com. Select IWS Users, File Exchange, and then select the document that best meets your needs. If you need access to the IWS Users community, please contact Nortel Networks marketing.

4.1 Patch Delivery

All patches are delivered on a single floppy diskette. If you have downloaded the patch image from a Nortel patch database or from the IWS customer website, you must create the floppy diskette yourself. Access to the patch image is available on the Nortel Networks customer website, at **www.nortelnetworks.com**. Section 4.3 explains how to create the patch diskette.

4.2 Patching Rules

The following rules apply to all patching installations:

- Unless you are directed otherwise in the individual patch instructions, **you must install all patches.**
Following this rule is critical to the success of your installation, because each patch is built based on any previous patches. It may not work without the others that precede it.
- Any patch can be removed. Removing a patch restores the code that was active before the patch was installed. Once a patch has been successfully removed from the IWS position hard drive, the position must be rebooted to disable the patch.

- Unless you are directed otherwise in the individual patch instructions, **you must install patches one at a time in increasing numerical order and remove them one at a time in decreasing numerical order.**
- **If you are applying or removing patches manually with a diskette, you need not reboot** after every patch is applied or removed. First apply all patches and then reboot the IWS position, unless the Nortel Networks customer website instructions accompanying a specific patch direct you otherwise. An applied patch is not enabled, and a removed patch is not disabled, until the position is rebooted.
- **If you are using the RAMP to apply or remove patches to other positions, you MUST reboot the position where the patch was applied or removed** after every patch is applied or removed. An applied patch is not enabled, and a removed patch is not disabled, until the position is rebooted.
- Patches can be applied to an IWS operator position, a gateway position, a RAMP-only position, or a combination IWS operator/RAMP position.
- Each patch on the Nortel Networks customer website is accompanied by information about it, including its title, creation date and time, a problem description, brief test instructions, and release information.

4.3 Creating an IWS Patch Diskette

The Nortel Networks customer website provides access for downloading the patch image at **www.nortelnetworks.com**.

To download the patch, first follow the steps outlined on page 125 to access the patch page. Then click on the patch you need. A Software Detail Information window will open. The patch may be downloaded by clicking on the File Download link or by right clicking on it and using the “Save target as...” option.

Once you have downloaded the patch image, you must create the patch diskette. If you already have a proper patch diskette, you may skip this section.

After you download from the patch database or the Nortel Networks customer website, what you are actually downloading is an *image* of the patch diskette (called an IWS Patch Diskette Image File) for a given release. This file contains *all* the current patches. Downloading this single file and executing a single command creates a 3 1/2-inch floppy diskette that contains all patches, tools, and documentation for that release.

Perform the following steps at the PC where you downloaded the patch diskette image.

1. **Place a formatted, blank 3 1/2-inch diskette in your computer’s floppy diskette drive.**
2. **Use the following substeps to open an MS-DOS window:**
 - a. Press Ctrl+Esc to open the Start menu.
 - b. Press the R key to choose the Run menu.
 - c. In the Run window, type command to open an MS-DOS window.

3. **In the MS-DOS window, go to the directory containing the IWS Patch Diskette Image File (the file you downloaded).**
4. **From the directory containing the IWS Patch Diskette Image File, type the following command:**

```
IWSXXXPA a:
```

where XXX is the IWS release load number (e.g., 170) and a: is your floppy diskette drive.
5. **Once the files have been extracted to the diskette, remove it from the drive.**
6. **Close the DOS window by typing exit at the DOS prompt and pressing Enter.**

This marks the end of the patch diskette download and extraction procedure. At this point, the patch diskette has been created.

4.4 Preparing the IWS position for patching

Preparing the IWS position for patching under Windows XP Professional requires that all IWS applications be terminated prior to installing patches.

Note: As of IWS 17.1, Windows XP Professional is the operating system used with the IWS software. Previous instructions for applying patches through a DOS prompt are no longer valid since the DOS prompt does not exist under Windows XP Professional as it did in Windows 95.

WARNING: NEVER install patches while running IWS software as this may corrupt the IWS software. If corruption occurs, the IWS software will have to be re-installed.

Follow this procedure to prepare the IWS position for patching:

1. **Press Ctrl+Alt+Del and select the Task Manager.**
Note that on the IWS keyboard, the CLG key is the Delete key.
2. **Select the Applications Tab if it is not already selected.**
3. **Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.**
4. **Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)**
5. **If the RAMP window is open, repeat steps 1 through 4 to close it.**
6. **From the Windows desktop, press Ctrl+Esc to open the Administrator menu.**
7. **Select the Command Prompt.**

Now the IWS patch can be applied to or removed from the position.

4.5 Applying Patches Manually from the IWS Patch Diskette

Before you start this procedure, remember two of the rules introduced in section 4.2:

- Unless you are directed otherwise in the individual patch instructions, **you must install all patches.** (Exception: If there are patches for two versions of an application, use only the one that applies to you).
- **You must install patches in increasing numerical order.**

At the position where you want to apply the patch, follow these steps:

1. **Log off the position.**
2. **Ensure that the position has been put into a Busy INB state at the MP Level from the DMS switch MAP position.**
3. **Terminate the IWS processes according to the instructions given in section 4.4.**

WARNING: NEVER install patches while running IWS software as this may corrupt the IWS software. If corruption occurs, the IWS software will have to be re-installed.

4. **Insert the floppy diskette containing the patches into the a: disk drive.**
5. **To load the patches, type the following command at the Command Prompt:**

```
a:\PXXXXYY <R or O or B>
```

where:

XXXXYY is the appropriate IWS patch identifier (as in the example P13001, where 130 is the release, and 01 indicates the individual patch)

R stands for a RAMP-only position.

O stands for an operator position.

B stands for a position that is both a RAMP and an operator position.

6. **IWS prompts you to confirm the application of the patch. Press any key to continue, or press Ctrl+C to abort the patch application.**

Note: For some patches, this message is displayed twice. This means that the patch tool must apply patches to different position types (such as a gateway and a general operator position). Confirm the application of the patch and continue.

7. **Observe the message on the screen telling whether a patch has loaded successfully. If the loading was successful, proceed to the next step. Otherwise, return to step 4 and try again. If loading is still not successful, create a new patch diskette using a different floppy diskette. If the problem persists, contact a Nortel representative for assistance.**

Note: If the application you are trying to patch is not installed on this position, ignore this error and continue.

-
8. **If you must install more than one patch, repeat steps 5 through 7 to continue with the installations. There is no need to reboot the IWS position after each patch is installed from the IWS Patch Diskette.**

Ignore the message “Please reboot this system for changes to take effect.”

9. **When you finish installing all the patches, remove the floppy diskette from the disk drive and store it in a safe place.**
10. **Press Ctrl+Alt+Del to reboot the position.**

WARNING: Do not type exit at the MS-DOS prompt. Use Ctrl+Alt+Del to shut down without exiting the MS-DOS window.

11. **Verify that all the patches were applied correctly, as described in section 4.7.**

This completes the procedure for manually installing patches from the IWS patch diskette.

4.6 Using the RAMP to Install Patches on Other Positions

Once you have installed patches on the RAMP, you can use the software distribution tool to distribute those patches to the other positions on the LAN.

The patches must first be installed on the RAMP itself, as described in section 4.5, “Applying Patches Manually from the IWS Patch Diskette.” Then you can use the RAMP software distribution tool and one of the patch’s software distribution (SWD) script files, you can install the patches on other IWS positions.

On the RAMP, look for the SWD file in the form of PXXXYY. For more information on using RAMP software distribution, refer to *TOPS IWS RAMP and Provisioning User’s Guide*, 297-2251-015.

Before you start this procedure, remember two of the patch application rules introduced in section 4.2:

- **You must apply patches one at a time in increasing numerical order.**
- **When you are using the RAMP to apply patches to other positions, you MUST reboot the position where the patch is installed after every patch is installed.**

WARNING: Failure to reboot after every patch is installed may corrupt the IWS software. If a corruption occurs, the IWS software will have to be re-installed.

Then follow these steps to use the RAMP to distribute the patches to the other positions on the local area network (LAN):

1. **At the RAMP position, from the RAMP window, press Alt+T to open the tools menu.**
2. **Press the F key to open the File Transfer menu and then the S key to access Software Distribution from the menu.**

The Software Distribution window displays, as shown in Figure 57.

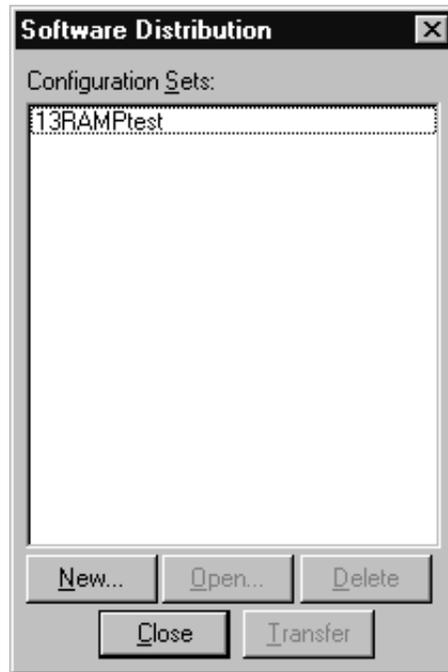


FIGURE 57. Software Distribution window

- 3. Press Alt+N to select New. This opens the Define Software Distribution Configurations dialog box, shown in Figure 58. In this window, you will define a configuration set to send the patches to the appropriate positions.**

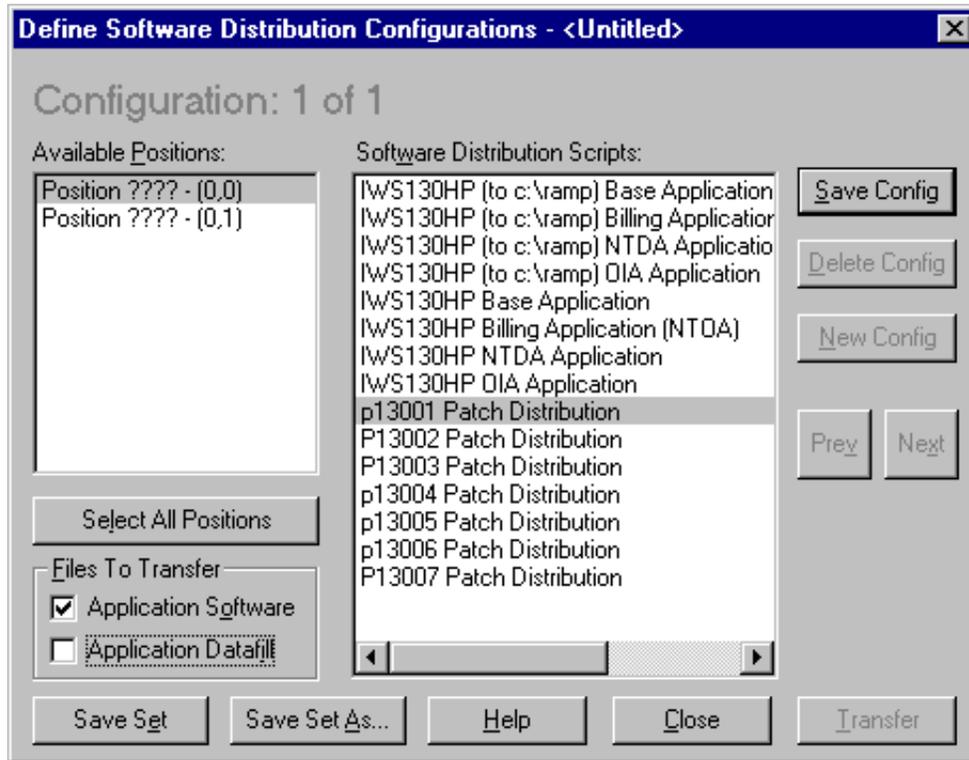


FIGURE 58. Example Software Distribution Dialog Box with Patching Files

4. **In the Define Software Distribution Configurations dialog box, use the arrow keys and spacebar to select the target positions individually, or press Alt+L to select all positions, and then use the space bar to deselect the RAMP.**

If you use the Select All Positions button, be sure to deselect the RAMP position from which you are working. You cannot distribute software to the position from which you are sending the files.
5. **Press the Tab key three times to move to the Software Distribution Scripts list.**
6. **Use the arrow keys and spacebar to select the first patch to be installed (P13001 Patch Distribution).**
7. **Press Alt+S to save the configuration.**
8. **Press Alt+C to close the Define Software Distribution Configurations dialog box.**
9. **Answer YES to the question, “Saving changes to configuration set?”**
10. **Enter a descriptive name, such as DOP13001, for example, and save the configuration set.**

11. Repeat steps 6 through 10 for each of the patches, and name the sets accordingly: for example, DOP13002, DOP13003, and so forth.
12. Back in the Software Distribution window, shown in Figure 59, select one of the configuration sets you have saved. Select only one set at the time, starting from the beginning.

It is critical that you transfer each patch separately, and in numerical order (for example, DOP13001 first, DOP13002 second, and so forth), as shown in Figure 59.

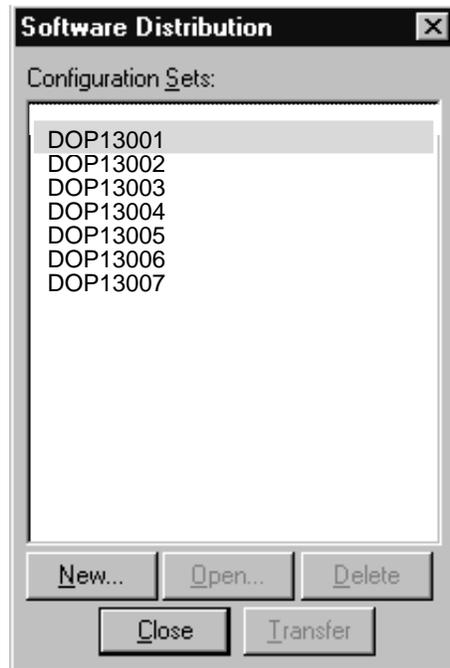


FIGURE 59. Software Distribution window

13. Press Alt+O to open the configuration set.
14. Press Alt+T to transfer the patch.
15. When IWS asks you if you want to capture the results to a file, answer NO.
16. When it asks whether you want to reboot after completion, answer YES.
17. Once the patch has finished transferring with no errors, and the positions have finished rebooting, press Alt+T, then the F key, then the S key, to bring the Software Distribution window to the front.
18. Repeat steps 12 through 17 for each patch to be installed.
19. Once all patches are installed, verify that they were applied correctly on all the positions, as described in the following section.

This completes the procedure for installing patches to the LAN from the RAMP.

4.7 Verifying That a Patch is Applied

There are two ways to verify that the patch has been applied on a position: through the Patch Information window or through the RAMP profiler. The following sections provide procedures for using both windows.

4.7.1 Using the Patch Information window

Follow the steps in this procedure to use the Patch Information window to verify that patches were applied.

1. **From the IWS logo window, press the Start key.**

The Operator Administration window displays.

2. **In the Operator Administration window, press the Position Profile softkey.**

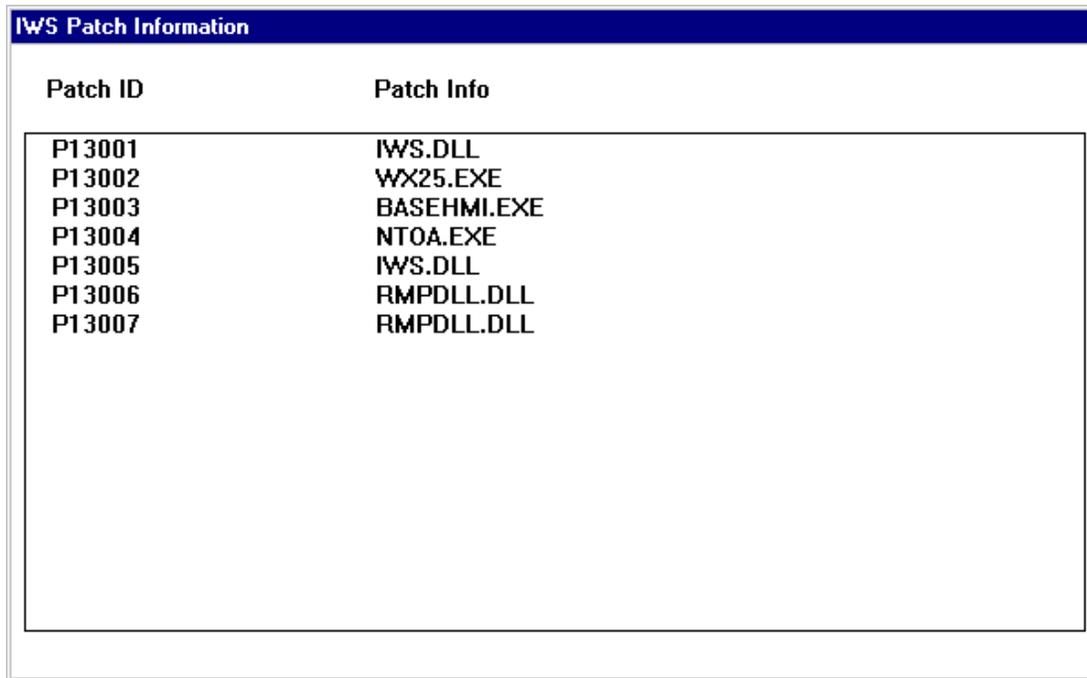
The IWS Position Profile window displays, as shown in Figure 60.

IWS Position Profile		
IWS Base Info	IWS130HP	Extended
IP Address	47.142.225.216	
Application	Appl Version	API Version
NTOA Plus	IWS130HP	IWS130HP
BASEHMI	IWS130HP	IWS130HP
IWSCASE	IWS130HP	IWS130HP
MPXOIA	IWS130HP	IWS130HP
NTDA	IWS130HP	IWS130HP

FIGURE 60. IWS Position Profile window

3. **From the IWS Position Profile window, press the Patch Information softkey.**

The Patch Information window displays, as shown in Figure 61.



Patch ID	Patch Info
P13001	IWS.DLL
P13002	WX25.EXE
P13003	BASEHMI.EXE
P13004	NTOA.EXE
P13005	IWS.DLL
P13006	RMPDLL.DLL
P13007	RMPDLL.DLL

FIGURE 61. Patch Information window

4. **Verify that the appropriate patch identifiers and patch descriptions are listed.**
5. **Press the Quit softkey three times to return to the IWS logo window.**

This completes the Patch Information window procedure.

4.7.2 Using the RAMP Profiler

To use the RAMP Profiler for verifying that patches were applied, follow the steps in this procedure.

1. **In the IWS RAMP window, press Alt+T to open the Tools menu.**

The Tools pull-down menu displays.

2. **Press P to choose the Profile option.**

The Position Profile window opens, with the cursor in the Available Positions list box, as shown in Figure 62.

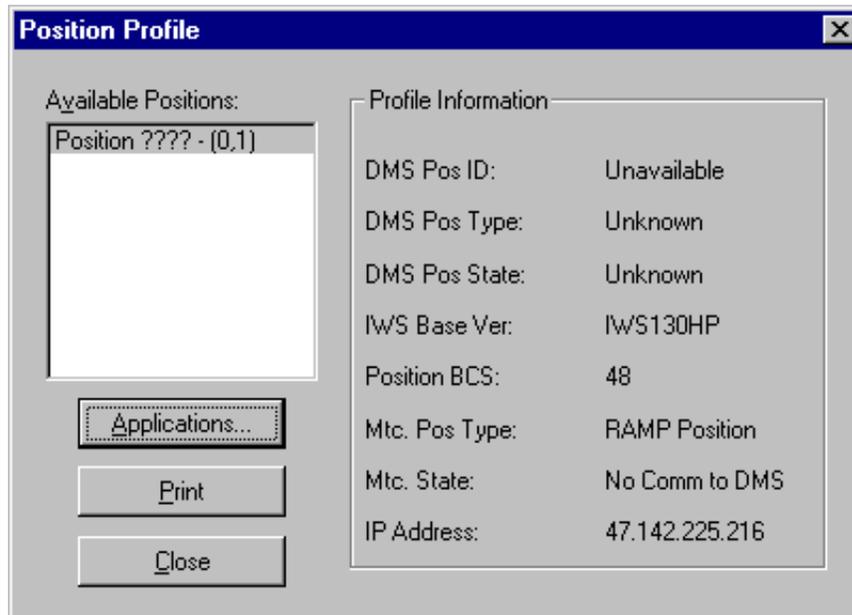


FIGURE 62. Position Profile window

- 3. Use the arrow keys to highlight the RAMP position, and press Alt+A to open the Applications Profile window.**

The Applications Profile window opens, with the cursor in the Available Applications list box, as shown in Figure 63.

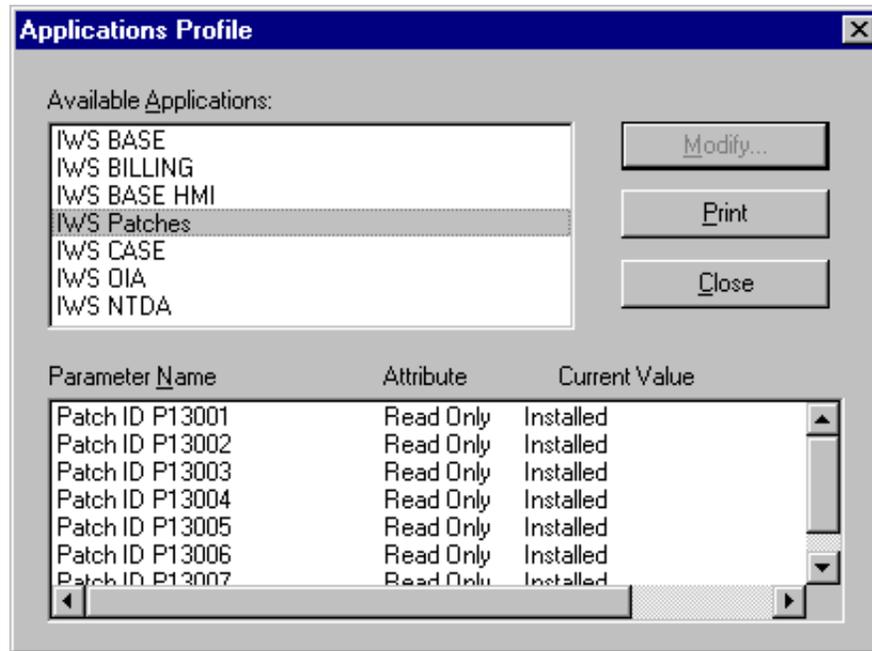


FIGURE 63. Applications Profile window

Note: In order for the RAMP to display in this listing, you must have the IWS Base up and running. Therefore, use Alt+Tab to switch to the RAMP window, rather than using Ctrl+Alt+Del to close down the Base window. For directions on enabling the Alt+Tab command, see section 5.2.

4. Use the arrow keys to highlight “IWS Patches.”
5. When “IWS Patches” is highlighted, the list box below it displays the list of patches installed on this position. Look for the appropriate patch identifiers in the Parameter Name column.
6. After verifying that the appropriate patches are listed, press Alt+C twice to close the Position Profile windows.

This completes the RAMP Profiler procedure.

4.8 Removing Patches Manually

Before you start this procedure, remember the patch removal rules introduced in section 4.2:

- **You must remove patches one at a time in decreasing numerical order.**
- **If you are removing patches manually, there is no need to reboot after every patch is removed.**

Follow these steps to remove one or more patches manually:

At the position from which you wish to remove the patch:

1. Log off the position.

2. Terminate all IWS processes and open a Command Prompt.

WARNING: NEVER install patches while running IWS software as this may corrupt the IWS software. If corruption occurs, the IWS software will have to be re-installed.

3. At the Command prompt, C:\WINDOWS>, type the following command:

```
C:\IWSPATCH\BACKUP\UPXXXYY <R or O or B>
```

where:

XXXYY is the appropriate IWS patch identifier.

R stands for a RAMP-only position.

O stands for an operator position.

B stands for a position that is both a RAMP and an operator position.

4. Observe the response on the screen telling whether the patch removal was successful. You will be prompted twice to press any key to continue.

Note: If you decide at this point not to remove the patch, you can press Ctrl+C to stop the patch removal process.

If the patch removal was successful, proceed to the next step. Otherwise, return to step 3 and try again. If the problem persists, contact a Nortel representative for assistance.

5. If you must remove more than one patch, continue with the removals.

There is no need to reboot the IWS position after each patch is removed. Ignore the message telling you to reboot.

Note: When you are installing patches to target positions from the RAMP, you **must** reboot the target IWS position after each patch is installed.

6. Press Ctrl+Alt+Del to reboot the position.

WARNING: Do not type exit at the MS-DOS prompt. Use Ctrl+Alt+Del to shut down without exiting the MS-DOS window.

4.9 Using the RAMP to Remove Patches from Other Positions

The IWS RAMP can be used to remove patches installed on other positions on the LAN. The patches must first be removed manually from the RAMP position, as described in section 4.8, “Removing Patches Manually.”

Once the patch is removed from the RAMP, you can use the RAMP software distribution tool and the appropriate SWD script file to remove it from other IWS positions. On the RAMP, look for the SWD file in the form UPXXXYY.

A new software distribution (.SWD) file was created on the RAMP for this purpose when the patch was removed manually. For more information on using RAMP software distribution, refer to *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015.

Before you begin the following procedure, verify that the appropriate patches have been removed from the RAMP.

Before you start this procedure, remember the patch removal rules introduced in section 4.2:

- **You must remove patches one at a time in decreasing numerical order.**
- **When you are using the RAMP to remove patches from other positions, you MUST reboot the position where the patch is removed after every patch is removed.**

WARNING: Failure to reboot after every patch is removed may corrupt the IWS software. If a corruption occurs, the IWS software will have to be re-installed.

Follow these steps to remove one or more patches using the RAMP's software distribution tool:

1. **At the RAMP, from the RAMP window, press Alt+T to open the tools menu.**
2. **Press the F key to open the File Transfer menu and then the S key to access Software Distribution from the menu.**

The Software Distribution window displays, as shown in Figure 64.

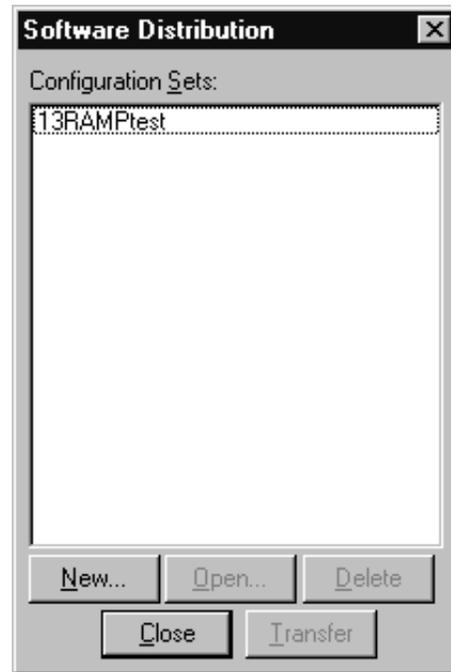


FIGURE 64. Software Distribution window

- 3. Press Alt+N to select New. This opens the Define Software Distribution Configurations dialog box, shown in Figure 65. In this window, you will define a configuration set to remove the patches from the appropriate positions.**

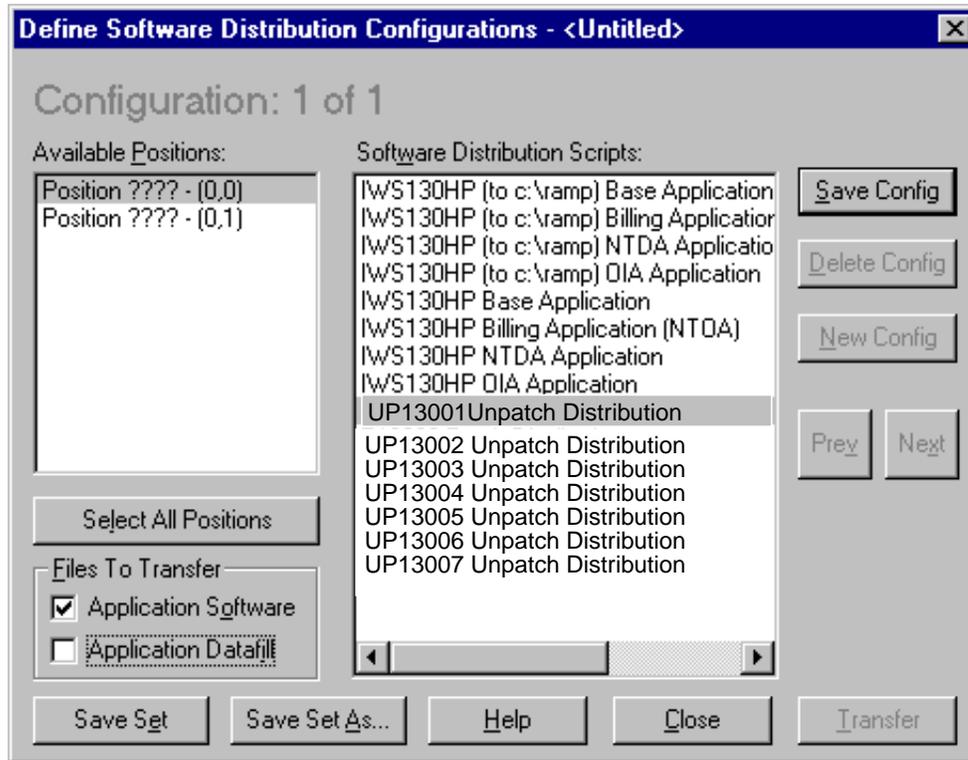


FIGURE 65. Example Software Distribution Dialog Box with Patching Files

4. **In the Define Software Distribution Configurations dialog box, select the target positions individually, or press Alt+L to select all positions, and then use the space bar to deselect the RAMP.**

If you use the Select All Positions button, be sure to deselect the RAMP position from which you are working. You cannot remove patches from the position from which you are sending the files.

5. **Press the Tab key three times to move to the Software Distribution Scripts list.**
6. **Use the arrow keys and spacebar to select the first patch to be removed.**
Remember to remove patches from high to low numbers. In this example, that means starting with UP13007 Unpatch Distribution, then going on to UP13006, UP13005, and so forth.
7. **Press Alt+S to save the configuration.**
8. **Press Alt+C to close the Define Software Distribution Configurations dialog box.**
9. **Answer YES to the question, “Saving changes to configuration set?”**
10. **Enter a descriptive name, such as UNDOP13007, for example, and save the configuration set.**

11. Repeat steps 4 through 10 for each of the patches, and name the sets accordingly: for example, UNDOP13006, UNDOP13005, and so forth.
12. Back in the Software Distribution window, select one of the configuration sets you have saved. Select only one set at the time, starting with the highest number.

It is critical that you transfer each patch separately, and in decreasing numerical order (for example, UNDOP13007 first, UNDOP13006 second, UNDOP13005 third, and so forth), as shown in Figure 66.

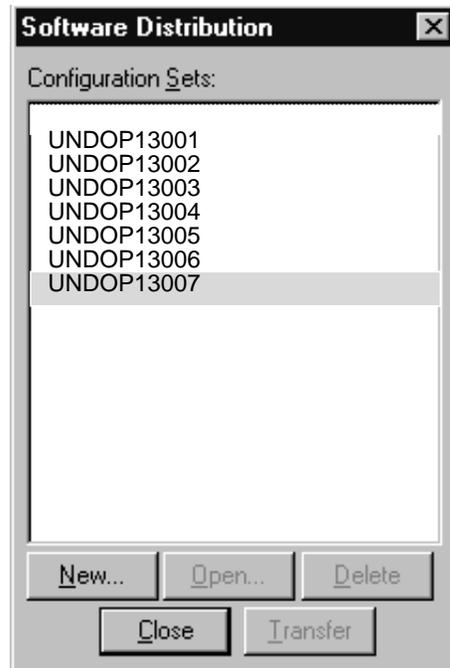


FIGURE 66. Software Distribution window

13. Press Alt+O to open the configuration set.
14. Press Alt+T to transfer the patch.
15. When IWS asks you if you want to capture the results to a file, answer NO.
16. When it asks whether you want to reboot after completion, answer YES.
17. Once the patch removal is finished with no errors, and the positions have finished rebooting, press Alt+T, then F, then S, to return to the Software Distribution window.
18. Repeat steps 12 through 17 for each patch to be removed.
19. Once all patches are removed, verify that all the patches were removed correctly from all the positions, as described in the following section.

This completes the procedure for installing patches to the LAN from the RAMP.

4.10 Verifying That a Patch is Removed

There are two ways to verify that the patch has been removed from a position: through the Patch Information window or through the RAMP profiler. The following sections provide procedures for using both windows.

4.10.1 Using the Patch Information window

Follow the steps in this procedure to use the Patch Information window to verify that patches were removed.

1. **From the IWS logo window, press the Start key.**

The Operator Administration window displays.

2. **In the Operator Administration window, press the Position Profile softkey.**

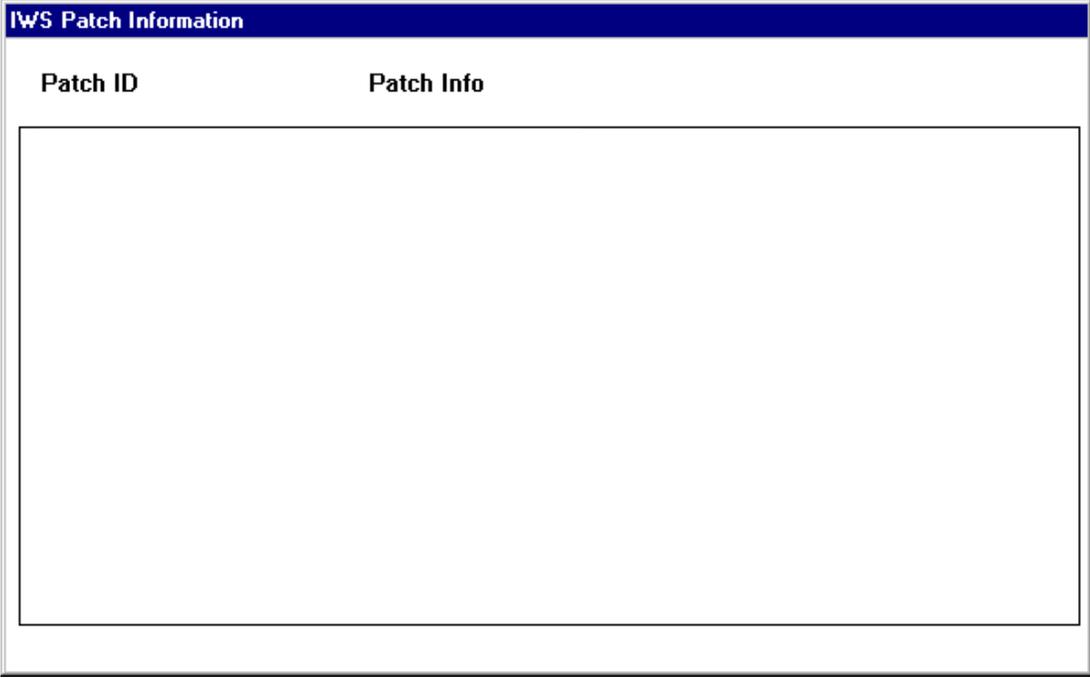
The IWS Position Profile window displays, as shown in Figure 67.

IWS Position Profile		
IWS Base Info	IWS130HP	Extended
IP Address	47.142.225.216	
Application	Appl Version	API Version
NTOA Plus	IWS130HP	IWS130HP
BASEHMI	IWS130HP	IWS130HP
IWSCASE	IWS130HP	IWS130HP
MPXOIA	IWS130HP	IWS130HP
NTDA	IWS130HP	IWS130HP

FIGURE 67. IWS Position Profile window

3. **From the IWS Position Profile window, press the Patch Information softkey.**

The Patch Information window displays, as shown in Figure 68.



Patch ID	Patch Info

FIGURE 68. Patch Information window

- 4. Verify that the appropriate patch identifiers and patch descriptions are no longer listed.**
- 5. Press the Quit softkey three times to return to the IWS logo window.**

This completes the Patch Information window procedure.

4.10.2 Using the RAMP Profiler

To use the RAMP Profiler for verifying that patches were applied, follow the steps in this procedure.

- 1. In the IWS RAMP window, press Alt+T to open the Tools menu.**

The Tools pull-down menu displays.

- 2. Press P to choose the Profile option.**

The Position Profile window opens, with the cursor in the Available Positions list box, as shown in Figure 69.

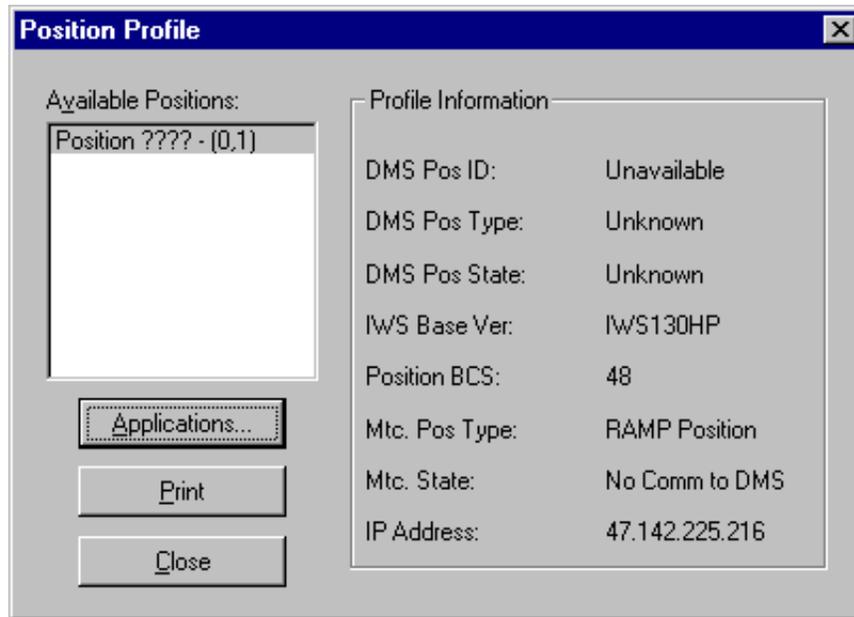


FIGURE 69. Position Profile window

- 3. Use the arrow keys to highlight the RAMP position, and press Alt+A to open the Applications Profile window.**

The Applications Profile window opens, with the cursor in the Available Applications list box, as shown in Figure 70.

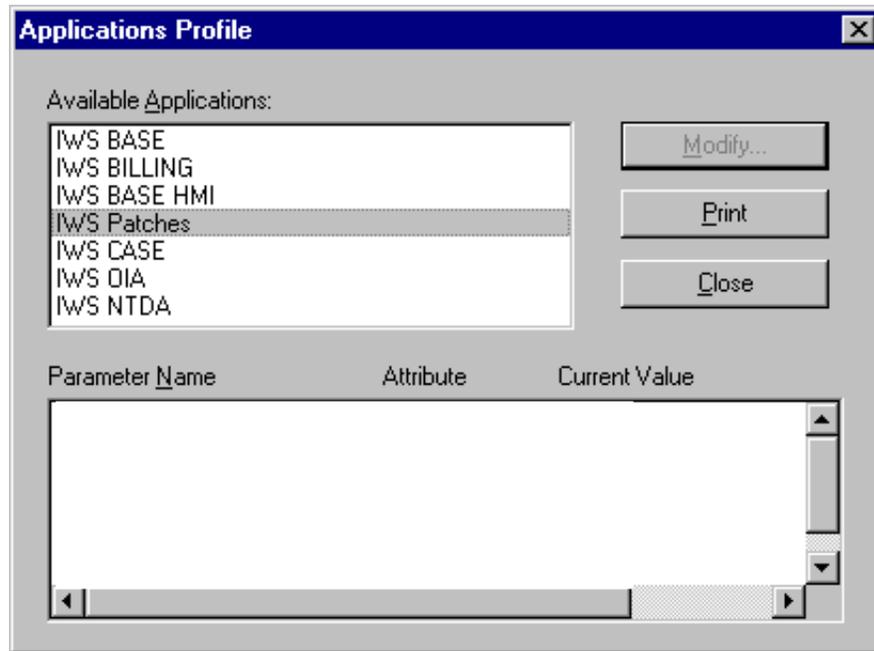


FIGURE 70. Applications Profile window

Note: In order for the RAMP to display in this listing, you must have the IWS Base up and running. Therefore, use Alt+Tab to switch to the RAMP window, rather than using Ctrl+Alt+Del to close down the Base window. For directions on enabling the Alt+Tab key command, see section 5.2.

4. Use the arrow keys to highlight “IWS Patches”
5. When “IWS Patches” is highlighted, the list box below it displays the list of patches installed on this position. Look in the Parameter Name column to verify that the appropriate patch identifiers are no longer listed.
6. After verifying that the appropriate patches have been removed, press Alt+C twice to close the Position Profile windows.

This completes the RAMP Profiler procedure.

5.0 IWS Position Adjustments

After the IWS 17.1 release software is loaded onto a PC, adjustments to the IWS datafill and other software control issues may need to be dealt with. Datafill changes that apply to IWS 17.1 and other subjects are explained in the this section.

If IWS datafill needs to be changed or customized at any time, the PC can be prevented from opening to the IWS logo window as part of a reboot (restart) as follows:

1. **From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.**
2. **Press key U to open the Shut down Window.**
3. **Press key R for restart.**
4. **Press the Enter key and wait for the Windows XP Professional splash screen to appear. When it does, press and hold down the Ctrl key. Wait for the Windows desktop. Datafill can be edited or other IWS applications can be installed from the Windows XP Professional desktop.**

If the Ctrl key is not held down, the PC will open to the IWS logo window. Use the following substeps to return to the Windows XP Professional desktop from the IWS logo window.

- a. Press Ctrl+Alt+Delete and select the Task Manager.
- b. Select the Applications Tab if it is not already selected.
- c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
- d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)

At this point, Ctrl+Esc can be used to open the Windows Start menu (Figure 71). From this start menu you can access the Startiws command to restart IWS.

You also have access to several IWS tools as shown in Figure 72. (Note that opening the RAMP application from this menu opens an off-ring RAMP window. Refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015.)

5.1 Checking for Datafill Changes

Existing files which may be affected by an upgrade include files with TBL, LNG, and INI extensions. Exactly which of these files and how the files are changed during an upgrade depend on several factors such as the type of IWS position, what applications were selected, and so on.

With the preserve option, only those TBL and LNG files that need to be changed for release IWS 17.1 to work properly are changed or overwritten. The preserve option also affects files with an INI extension. With the current preserve option, an attempt is made to propagate any previous user changes that were made to an INI file into the current IWS 17.1 software load. This propagation is made only with previous loads that are within three releases of the current upgrade. Note that this also applies when a customized IWS 17.1 load is again reloaded with the same IWS load. In general, the preserve option matches each entry in a new IWS INI file with the same entry type in the previous IWS INI file, and propagates the older entry value into the newer INI file. This way, when possible, all of a user's previously-set values in the INI files are transferred into the newer IWS load. Note that a new upgrade entry that does not have a matching entry type in the previous INI file will not be changed. However, if necessary, the value of the default value of the new entry can be changed by a user as in previous releases.

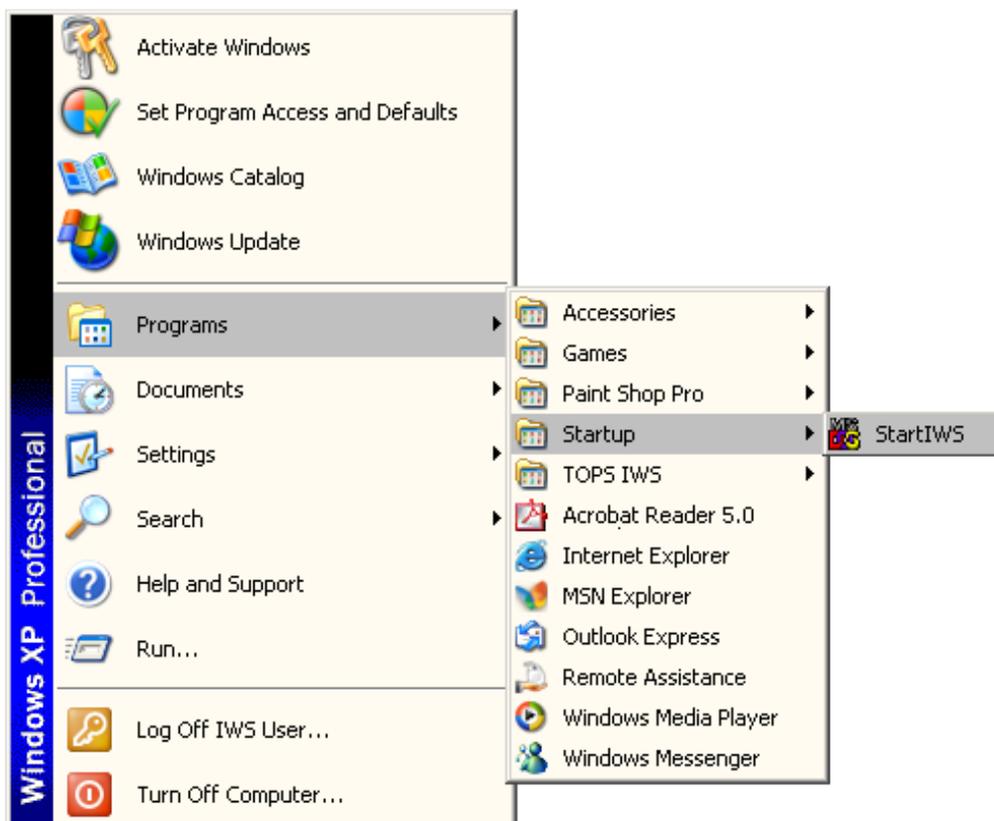


FIGURE 71. Startiws Command

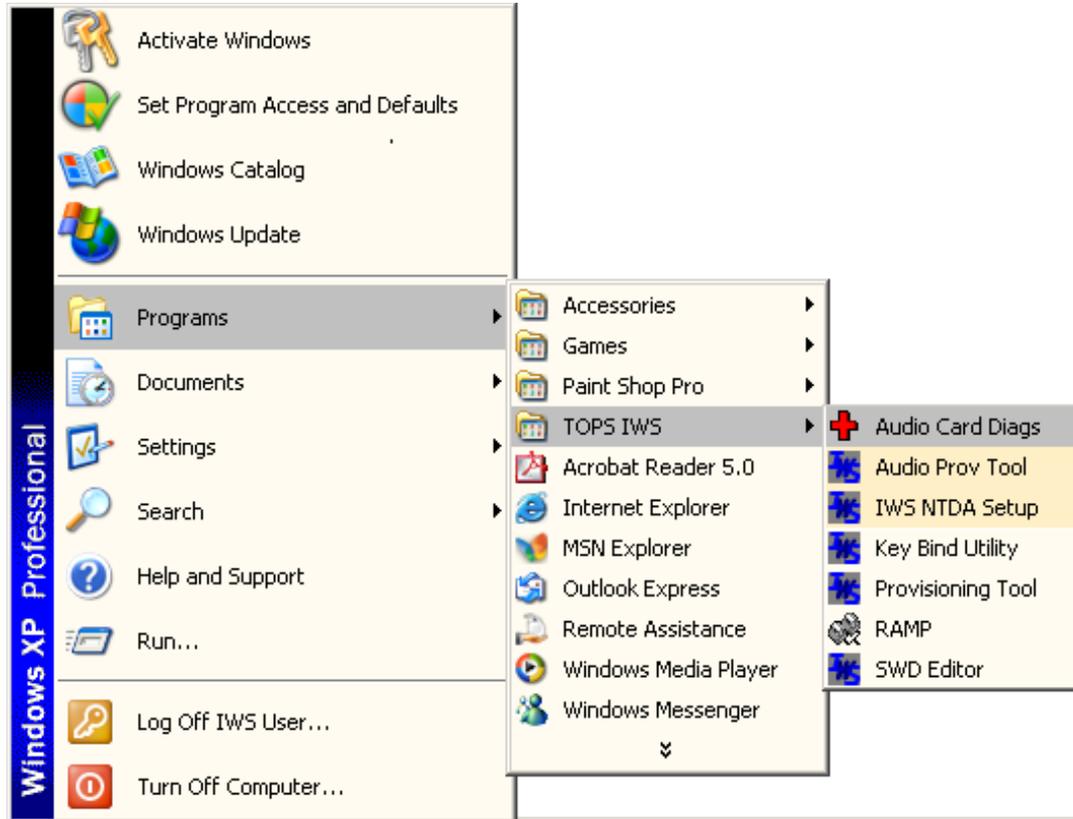


FIGURE 72. IWS Tools Menu

5.1.1 Checking TBL and LNG Files

The TBL (table) files contain settings which primarily match up with settings in the CM (Computing Module) of the DMS switch. The LNG (language) files contain text strings that control what an operator sees. The TBL and LNG files may be new or changed as a result of an upgrade to the new IWS load. The files that are actually added or changed depend both on the previously installed IWS load and on which of the IWS applications are applied as part of the upgrade to the new IWS load. Original copies of any changed or overwritten TBL, LNG, and INI files are renamed with extension IWS and are saved in the C:\MPXBASE\TMP directory.

Also, with an upgrade, new TBL and LNG files may be added to the datafill directory or old files may be obsolete. Upgrade information about all IWS base and application datafill is created and placed in directory C:\MPXBASE\TMP. This directory contains the following information:

- **NEWTBL.TXT:** contains a list of LNG and TBL files that are new datafill for this release. These files did not exist in directory C:\MPXBASE\DATAFILL prior to the upgrade.

- **CHGTBL.TXT:** contains a list of LNG and TBL files that were backed up and replaced with new files because of differences between the original files and newer upgrade files. The original file content with its custom data is saved in directory C:\MPXBASE\TMP to a file that has a IWS extension.
- **OBSTBL.TXT:** contains a list of LNG and TBL files that were obsoleted and removed. The content of the original file with any custom data is saved in directory C:\MPXBASE\TMP to a file that has an OBS extension.

5.1.2 Checking INI Files

The INI (initialization) files contain settings used by various IWS applications. Table 10 lists INI files that may be affected by a preserved upgrade. The AUDIOINI.INI file applies only to TDM positions; the POSINFO.INI file applies to IP positions. Original copies of changed and overwritten files are renamed with extension IWS and are saved in the C:\WINDOWS directory. For example, before it is changed, a copy of the AUDIOINI.INI file is saved as the AUDIOINI.IWS file.

IWS application	Affected INI Files
IWS Base application	AUDIOINI.INI CLNTTCPI.INI MPXINI.INI MPXNET.INI MPXPARM.INI MPXTOP.INI POSINFO.INI RMPCONF.INI SCRIPTINI.INI
IWS Billing (previously NTOA) application	NTOAINI.INI
OIA application	OIAINI.INI
NTDA application	MSGEDIT.INI NTDAINI.INI UMP.INI

TABLE 10. INI Files Affected by Preserved Upgrade to IWS 17.1

The following special rules apply to the MPXINI.INI, MPXNET.INI, and HOSTS files during an upgrade.

- **MPXINI.INI:** The following rules apply to file MPXINI.INI during an upgrade. Table 11 and Table 12 list required NonRegisteringX and RegisteringX values in file MPXINI.INI that may be affected by a preserved upgrade. Examples of these upgrade rules are shown in Table 13.
 - Prior to IWS 13.0, when an application was selected, it was necessary to later modify the MPXINI.INI file and change the [Registering] and [NonRegistering] sections of the MPXINI.INI file. As of IWS 13.0, the MPXINI.INI file is now automatically modified to agree with the type of IWS position and the types of

IWS applications selected during the upgrade. This is no problem if the option to overwrite is selected, but it can be if the preserve option is selected and the user selects to change the type of IWS position or changes the types of applications during an upgrade to the new IWS load from what these selections were in the earlier IWS load.

IWS position type	Required NonRegisteringX values
General position	None
DMS gateway and general position (TDM only)	MPXMTCGW.EXE WX25.EXE
RAMP and general position	RAMP.EXE
RAMP Only	Not applicable

TABLE 11. Position Type and Required NonRegisteringX values

IWS application	Required RegisteringX values
Base application	BASHMI.EXE CASE.EXE
IWS Billing (previously NTOA) application	NTOA.EXE
OIA application	MPXOIA.EXE
NTDA application	NTDA.EXE
EISA Client Application	EISAC.EXE

TABLE 12. IWS Application and Required RegisteringX values

Type of upgrade	MPXINI.INI file	
Change: a DMS gateway is changed to a RAMP	Before upgrade	After preserved upgrade
	[APPLICATIONS] NonRegistering1= WX25.exe NonRegistering2= mpxmtcgw.exe NonRegistering3= ...	[APPLICATIONS] NonRegistering1= ramp.exe NonRegistering2= NonRegistering3= ...
No change: a RAMP remains a RAMP	Before upgrade	After preserved upgrade
	[APPLICATIONS] NonRegistering1= ramp NonRegistering2= ...	[APPLICATIONS] NonRegistering1= ramp.exe NonRegistering2= ...
Change: NDTA is added to existing applications	Before upgrade	After preserved upgrade
	[APPLICATIONS] Registering1= basehmi Registering2= CASE.EXE Registering3= Registering4= ...	[APPLICATIONS] Registering1= basehmi Registering2= CASE.EXE Registering3= ntda.exe Registering4= ...
Change: OIA was an existing application before the upgrade, but it is not selected during the upgrade	Before upgrade	After preserved upgrade
	[APPLICATIONS] Registering1= basehmi Registering2= mpxoia.exe Registering3= Registering4= ...	[APPLICATIONS] Registering1= basehmi Registering2= mpxoia.exe Registering3= CASE.EXE Registering4= ...
		<i>Note:</i> Although the CASE application is not required for the IWS base application to run, the CASE.EXE value is added to file MPXINI.INI during an upgrade if it is missing.

TABLE 13. Example Changes to MPXINI.INI after a Preserved Upgrade

- HOSTS:** This file is used to match IP addresses with symbolic names. The file HOSTS is found in directory C:\WINDOWS\SYSTEM32\DRIVERS\etc. Prior to IWS 13.0, the HOSTS file was replaced during an IWS upgrade with a new HOSTS file containing default values that were of little use for a specific site. As of IWS 13.0, the HOSTS file is no longer replaced during an upgrade with a new HOSTS file containing default values. Instead, default HOSTS values are placed in a file called HOSTS.TBL in directory C:\WINDOWS\SYSTEM32\DRIVERS\etc. This preservation of older HOSTS values is true regardless of the preservation or overwrite state during an upgrade.

5.1.3 Additional Checks

In addition to the above files, use the following checks (see bullets) to verify the content of all IWS files. Use the IWS provisioning tool, or any Windows text editor (such as WordPad or Notepad) to manually propagate changes to IWS files. Use of the IWS provisioning and keybind tools is the preferred method of editing IWS files because it provides error checking. (For information on using the provisioning and keybind tools, refer to the *TOPS IWS RAMP and Provisioning User's Guide*.) Also, use the Programs menu of the Windows Start menu to access TOPS IWS base tools. (Refer to section 5.2 for information on the Alt+Tab, Ctrl+Tab, and Ctrl+Alt+Delete commands and to section 5.8 for other helpful tools.) Note that after Windows XP Professional and IWS software is installed and the position is restarted, file STARTIWS.PIF will start the IWS program. In order to edit datafill or to install other IWS applications, startup of the IWS program can be avoided by holding down the Ctrl key after the Windows XP Professional splash screen is displayed while the position is restarting. And, after the position restarts to the Windows XP Professional desktop, datafill can be edited or other IWS applications can be installed.

- All files in directory C:\WINDOWS that have an IWS extension are backed-up versions of files that were created during installation. For example, MPXNET.IWS is the old version of MPXNET that resided on the workstation prior to this upgrade. These files may contain data that you want to retrieve and put back in the new versions of the files. You can see what files were affected in this manner by entering the following command in the C:\WINDOWS directory:

```
dir *.iws
```

and press the Enter key.

Note: This should automatically be handled by the install program.

- Check the files MPXINI.INI and MPXNET.INI in directory C:\WINDOWS, the file HOSTS in directory C:\WINDOWS\SYSTEM32\DRIVERS\etc., and the datafill files in directory C:\MPXBASE\DATAFILL, to make sure any earlier custom changes are reflected in the new corresponding files.
- Check the revisions section of this document for additional file changes that apply to IWS positions. For example, note that because of revisions from IWS release 15.2 to 17, you must use KeyBind to reassign key actions for new scan codes if the XKBOARD.TBL file of an earlier release is preserved.
- Verify what software load is in the DMS switch. Release IWS 17.1 is compatible with DMS-200 loads TOPS14 and higher or SN04 and higher.
- In addition to IWS applications covered in this document, TOPS IWS is an open platform that can support a variety of independent applications. For independent applications, refer to the respective application documentation for procedures, requirements, and restrictions.
- Finally, read through all of the following sections for information concerning IWS colors and fonts, screen saver and resolution, and so on.

5.2 Alt+Tab, Ctrl+Esc, and Ctrl+Alt+Del Commands

In a Windows environment, the Alt+Tab command is used to cycle through opened applications (more than one application must be running). Also, in the Windows environment, the Ctrl+Esc command is used to access the Windows XP Professional Start menu. And finally, the Ctrl+Alt+Del command can be used to close down currently opened applications, and it can also be used to restart the PC.

Although IWS base software does not disable Ctrl+Alt+Del, it does, by default, disable both Alt+Tab and Ctrl+Esc so that these two commands cannot be used when the IWS logo window has focus. There are ways, however, to enable or disable all of these commands for use after the IWS base application has started. These methods are explained next.

5.2.1 Enabling the Alt+Tab Command

This command is permanently enabled for use at the IWS logo window by setting an environmental variable called **alttab** to value of 1. This can be done at an IWS position as follows:

1. **If the IWS logo window has focus, shut down the IWS base application as follows:**
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. **Press Ctrl+Esc to open the Start menu.**

3. Go to Settings, and select Control Panel.

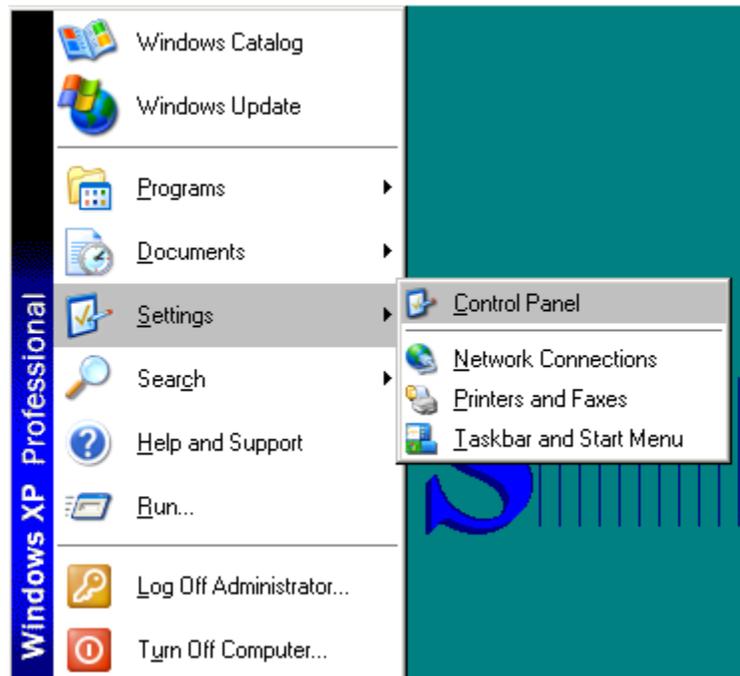


FIGURE 73. Control Panel location

4. Double click on the System Icon to open the System Properties screen.

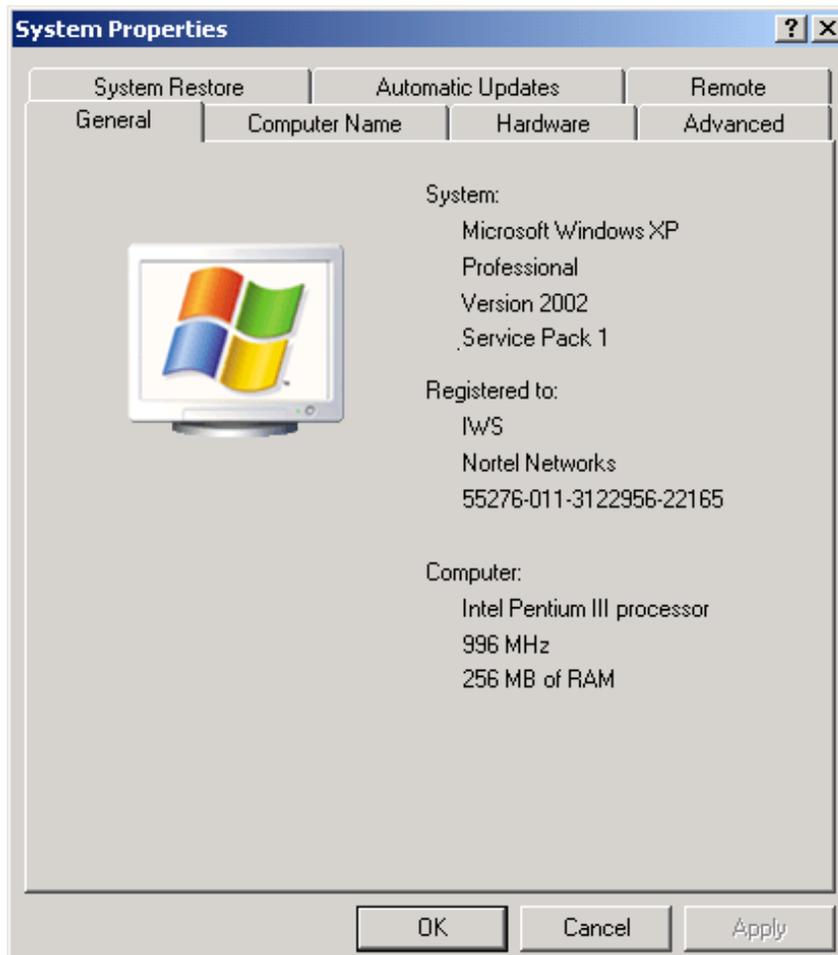


FIGURE 74. System Properties screen

5. Go to the Advanced tab of Systems Properties

6. Click on Environmental variables button at bottom of the screen

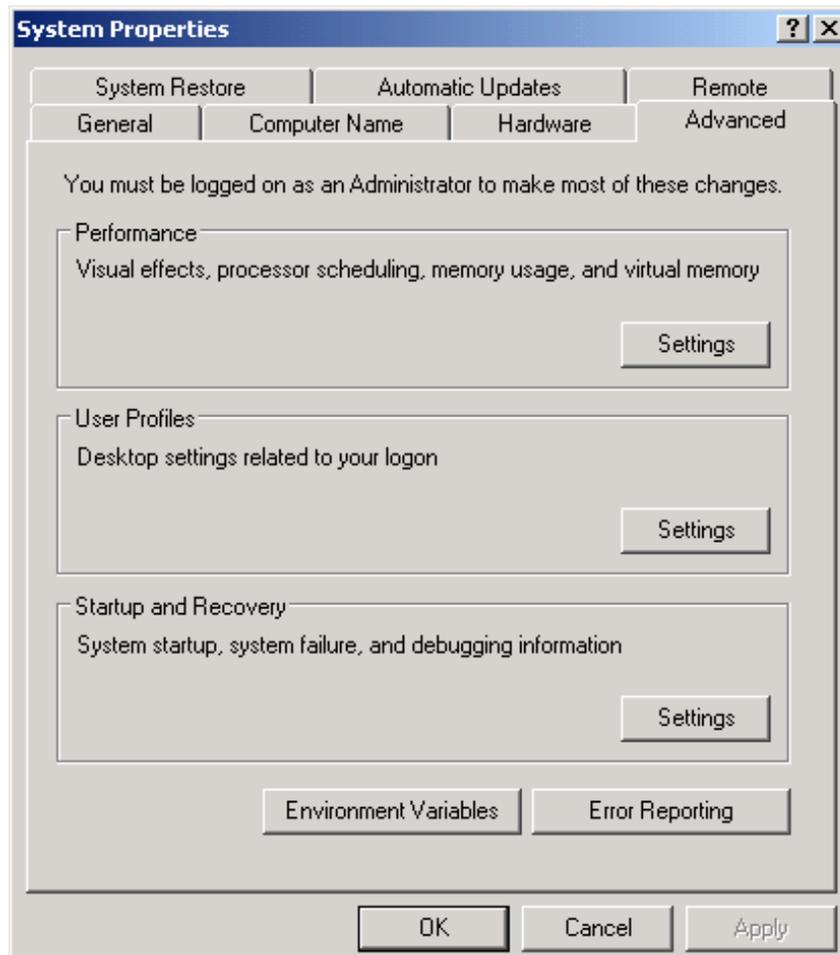
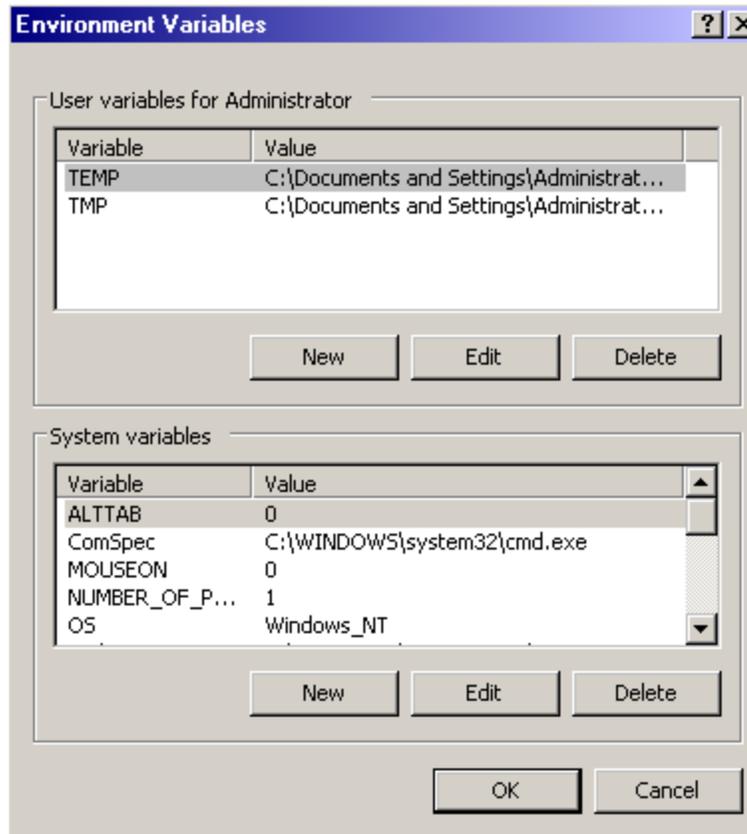
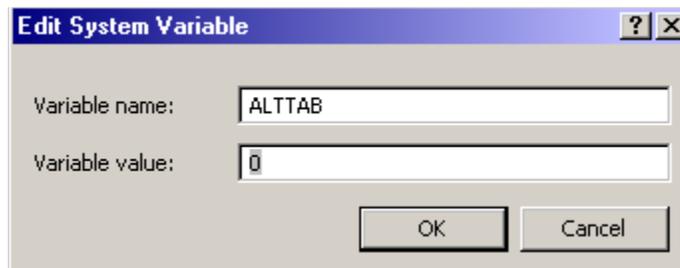


FIGURE 75. System Properties Advanced tab

7. Display the Environmental variables screen.**FIGURE 76. Environmental variables screen****8. Change the ALTTAB variable in the Environmental variables screen.**

- a. Click on ALTTAB in the System variables box
- b. Click on the Edit button for the System variables.

**FIGURE 77. Edit Systems Variable screen**

- c. Change the Variable value to 1. Note: The default is 0, which represents off. A value of 1 represents on.

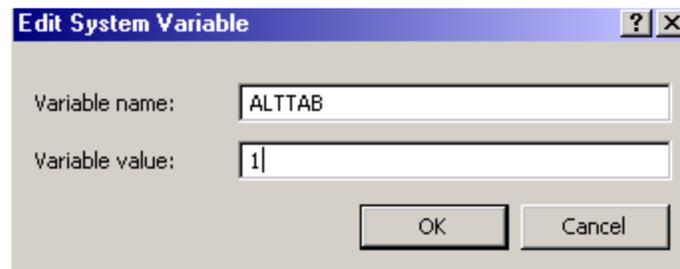


FIGURE 78. Changing the system variable

- d. Click OK.
- e. Verify that the ALTTAB variable is set to 1 in the Environmental variables screen.

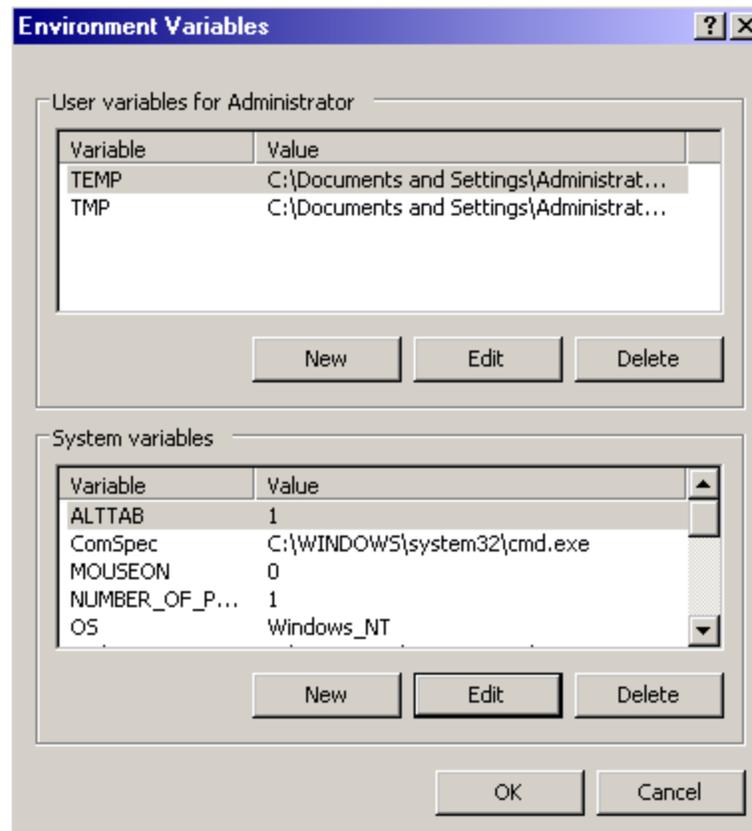


FIGURE 79. Verify variable changed

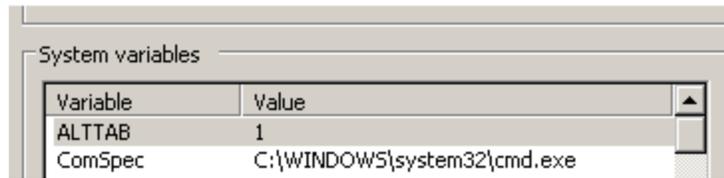


FIGURE 80. ALTTAB variable changed

- f. Click OK to return to the System properties screen.
- g. Click OK to return to the Control panel.
- 8. The Alt+Tab command is now permanently enabled for use at the IWS logo window.**

Press Alt+Tab as needed to switch between the IWS logo window and other running applications (more than one application must be running). (If the IWS position is restarted again, Alt+Tab remains enabled at the IWS logo window.)

Later, once Alt+Tab is no longer needed, it can be disabled again. Just use the same steps, but this time, change the ALTTAB environmental variable back to 0.

5.2.2 Using the RAMP to Control the Alt+Tab and Ctrl+Esc Commands

The RAMP can be used to temporarily enable both Alt+Tab and Ctrl+Esc at a designated IWS position as follows.

- 1. If an IWS logo window has focus at the RAMP and Alt+TAB is NOT enabled on the position, shut down the IWS base application as follows:**
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
- 2. Press Alt+Tab if needed to get a Remote Access Maintenance Position window.**

If the RAMP window does not have focus, press Alt+Esc to give it focus. It may also be necessary to enable the RAMP's ping setting from the Options menu.

- 3. Press Alt+T to open the Tools menu.**
- 4. Press key P to open a Position Profile window.**

Use the arrow keys to highlight and target an IWS position from the ones listed in the Available Positions box as shown in Figure 81. Note that if this is a RAMP

and general operator position, and that step 1 was not used to shut down the MPX BASE Application, then the target position can be this RAMP itself as shown in Figure 82.

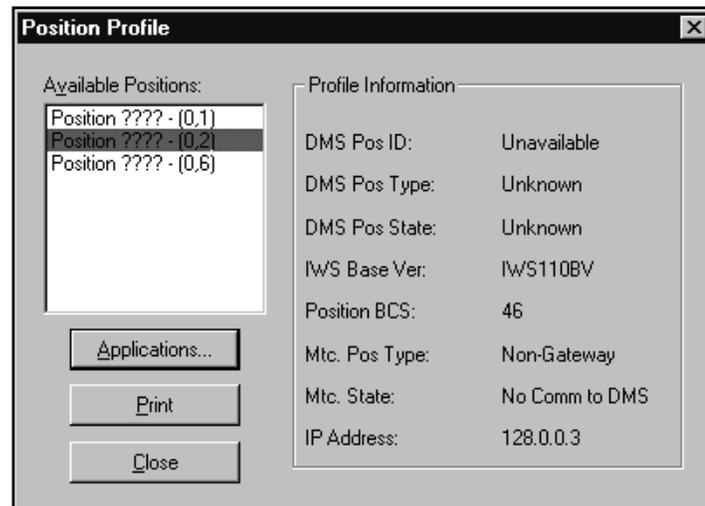


FIGURE 81. Profile of an IWS Position

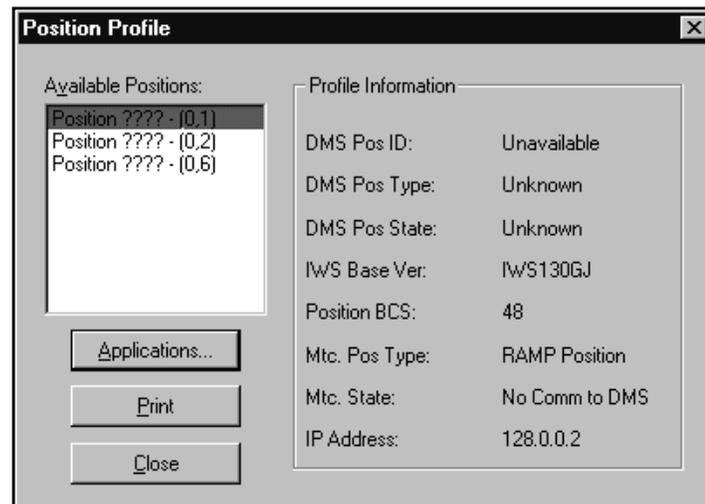


FIGURE 82. Profile of RAMP

5. **Press Alt+A to open an Applications Profile window.**
 - a. Use the down arrow key to highlight the name IWS BASE in the Available Applications box. An example window is shown in Figure 83.
 - b. Press Alt+N and then arrow keys to highlight the name Start Menu Enabled in the Parameter Name box. This parameter can only be modified when its Attribute is set to R/W.

With the parameter Start Menu Enabled set to False as shown in Figure 83, the Ctrl+Esc command at the target position cannot be used to open the Windows Start menu from the IWS logo window. And Alt+Tab cannot be used at the target position to cycle from the IWS logo window to another currently running application.

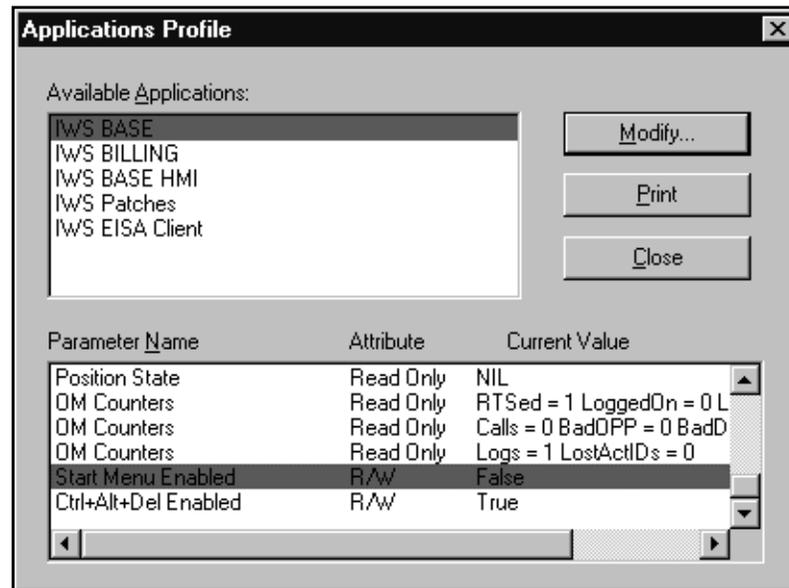


FIGURE 83. Applications Profile Window

6. Press Alt+M to choose the Modify button and open an Application Parameter Modification window.

- a. Type **true** at the Value command line as shown in Figure 84.
- b. Press Alt+S to change the setting of the Start Menu Enabled variable to true as shown in Figure 85.

Commands Ctrl+Esc and Alt+Tab key are now temporarily enabled at the target position. Alt+Tab can be used to tab from the IWS logo window to another running application. And Ctrl+Esc can be used to open the Windows XP Professional Start menu. If the target position is restarted, Ctrl+Esc and Alt+Tab are again disabled at the target position.

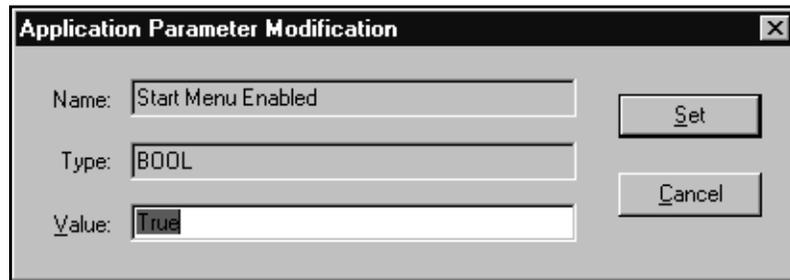


FIGURE 84. Setting Start Menu Enabled to True

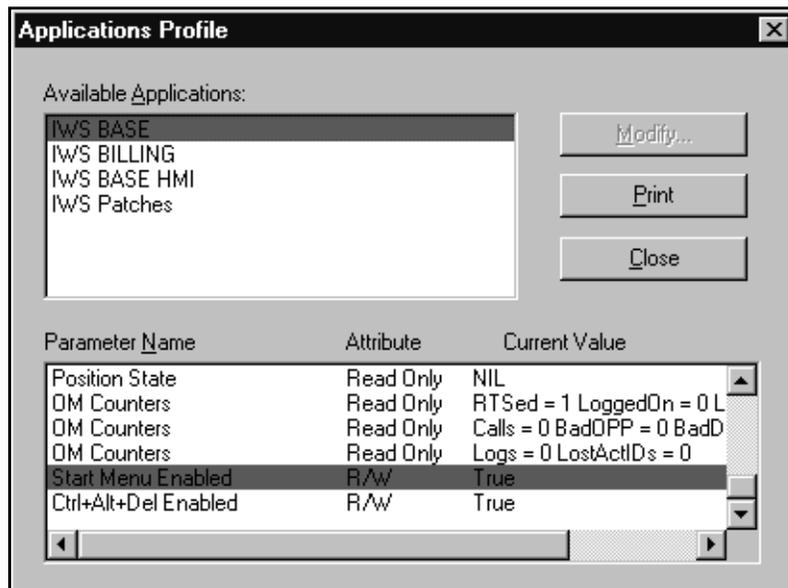


FIGURE 85. Start Menu Enabled Set to True

7. Use the Tab key and Enter keys to close the modification windows at the RAMP.

5.2.3 Using the RAMP to Control the Ctrl+Alt+Del Command

The Windows Ctrl+Alt+Del command is used to obtain a list of currently running applications and it is also used to restart (soft reboot) the PC. By default, this command is not disabled by IWS software so that it can be used by maintenance personnel. Once an IWS position is set up to process telephone calls, the Ctrl+Alt+Del command can be disabled. The RAMP can be used to disable (or enable) this command for the IWS base application at an IWS position as follows:

1. If an IWS logo window has focus at the RAMP and Alt+Tab is NOT enabled on the position, shut down the IWS base application as follows:
 - a. Press Ctrl+Alt+Delete and select the Task Manager.

- b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. **Press Alt+Tab if needed to get a Remote Access Maintenance Position window.**

If the RAMP window does not have focus, press Alt+Esc to give it focus. It may also be necessary to enable the RAMP's ping setting from the Options menu.

3. **Press Alt+T to open the Tools menu.**
4. **Press key P to open a Position Profile window.**

Use the arrow keys to highlight and target an IWS position from the ones listed in the Available Positions box as shown in Figure 86. Note that if this is a RAMP and general operator position, and that step 1 was not used to shut down the MPX BASE Application, then the target position can be this RAMP itself as shown in Figure 87.

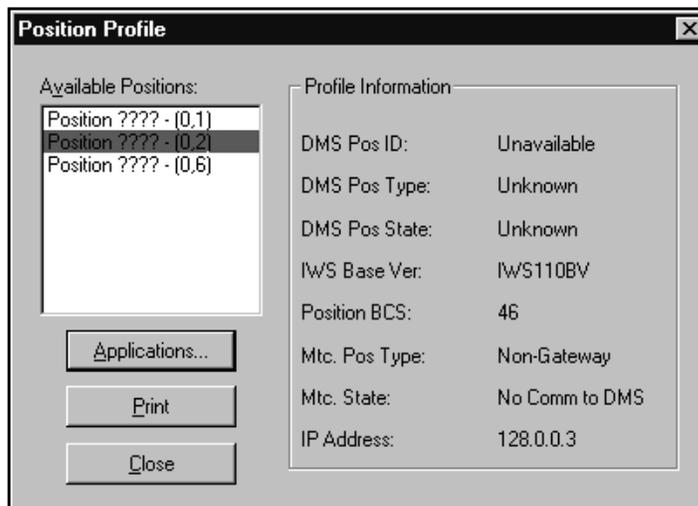


FIGURE 86. Profile of an IWS Position

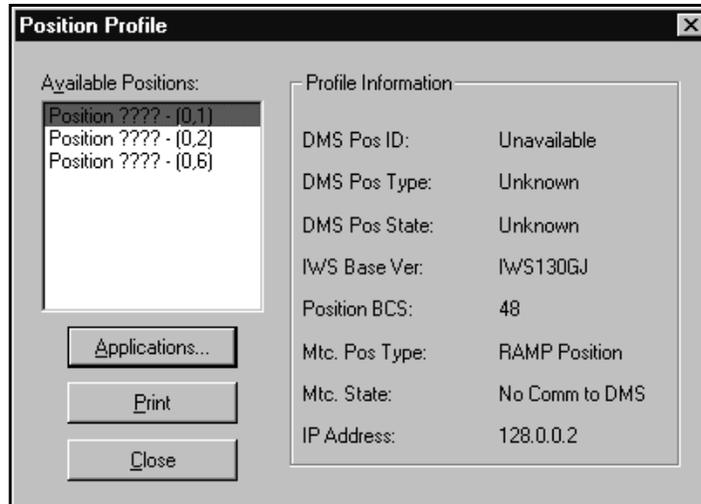


FIGURE 87. Profile of RAMP

5. Press Alt+A to open an Applications Profile window.

- a. Use the down arrow key to highlight the name IWS BASE in the Available Applications box. An example window is shown in Figure 88.
- b. Press Alt+N and then use arrow keys to highlight the name Ctrl+Alt+Del Enabled in the Parameter Name box. This parameter can only be modified when its Attribute is set to R/W.

With Ctrl+Alt+Esc Enabled set to true as shown in Figure 88, the Ctrl+Alt+Del command at the target position can be used to open a Close Program window from the IWS logo window. This parameter needs to be set to false to disable it.

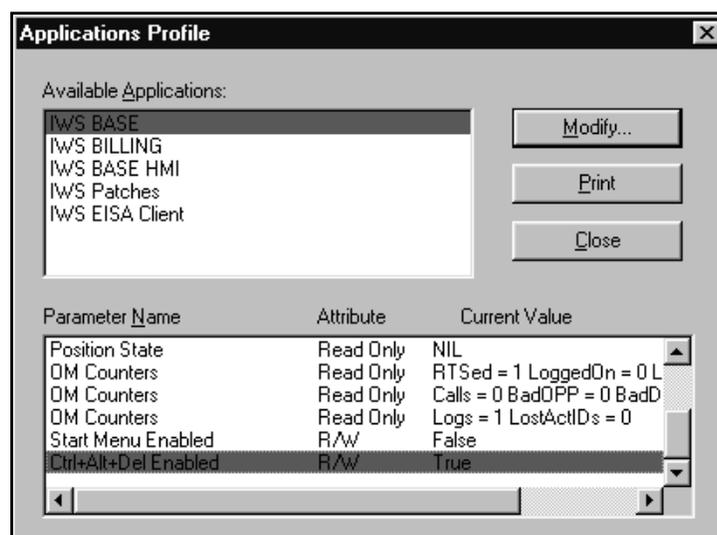


FIGURE 88. Ctrl+Alt+Esc Enabled

6. Press **Alt+M** to choose the **Modify** button and open an **Application Parameter Modification** window.
 - a. Type **False** at the Value command line.

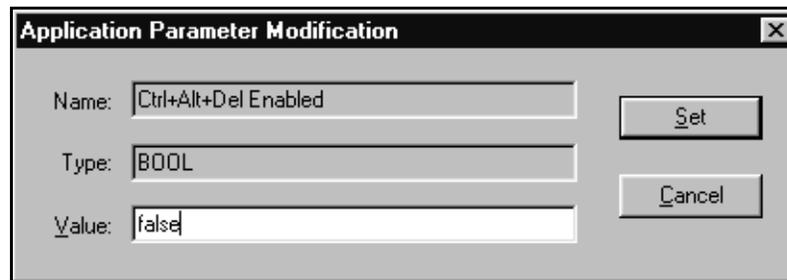


FIGURE 89. Setting Ctrl+Alt+Esc Enabled to False

- b. Press **Alt+S** to set Ctrl+Alt+Del Enabled to false.

With Ctrl+Alt+Del Enabled set to false as shown in Figure 90, the Ctrl+Alt+Del **cannot** be used at the target position from an IWS logo window. Even if the PC's power switch is used to shut down and restart the PC, the Ctrl+Alt+Del command cannot be used at an IWS logo window.

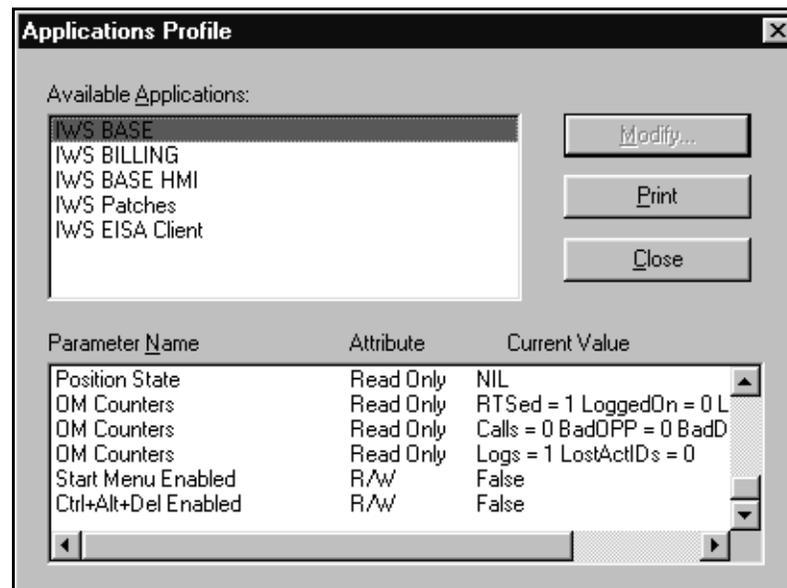


FIGURE 90. Ctrl+Alt+Del is Disabled

7. Use the **Tab** key and **Enter** keys to **Close** the **Profile** windows.

To again enable Ctrl+Alt+Del, repeat this procedure but set the Ctrl+Alt+Del parameter to true instead of false.

5.3 Colors

The available color sets are tied to the Windows XP Professional themes, which are established by the craftsperson. Previous color sets from pre-IWS 17.1 releases are not transferable. If the craftsperson previously altered the default Nortel Networks color schemes, those alterations must be reset again by modifying the IWS 17.1 theme files as explained in section 5.3.1.

The operator selects one of the available color sets within the theme. There are now 14 color schemes available instead of the previously available seven. The seven additional schemes are available by using the shifted versions of the softkeys.

Note: An operator cannot modify an IWS color set within the Windows XP Professional theme. This must be done by the craftsperson.

5.3.1 Customizing the color theme

To change an IWS theme, the craftsperson can follow the steps below:

1. Go to the Windows **Control Panel**.
2. Select **Display Properties**.
3. Select the **Theme** window.
4. Select the preferred IWS theme from the dropdown list.
5. To customize the theme, select **Appearance**.
6. Select the **Advanced** button under the **Item** tab. This displays what can be customized.
7. Once the changes are complete, select the **OK** button. This will take you back to the Theme window.
8. To apply the changes, you must do a Save As and use the same IWS theme name as used previously.
9. Repeat steps 4 - 8 for each color scheme to be modified.
10. Reselect "My Favorite Theme" and apply it after modifying all color schemes desired.

Once the craftsperson has modified the themes, RAMP can be used to distribute the customized theme files as explained in section 5.3.3.

Note: Color changes should be completed prior to the RAMP transfer. Otherwise, any changes made will require a second RAMP transfer.

5.3.2 Restoring the IWS color theme to the Nortel Networks default:

To restore the IWS themes to the Nortel Networks defaults, the craftsperson can follow the steps below:

1. Verify that the IWS software is not running.
2. Bring up Windows Explorer.
3. Go to the c:\MPXBASE\TOOLS\TEMPLATE folder.
4. Copy all of the default IWS theme files. These would be designated as *.theme files.
5. Go to the “My Documents” folder under the Windows desktop.
6. Paste the theme files into the “My Documents” folder.
7. Exit Windows Explorer.
8. Reboot the position.

5.3.3 Distributing customized IWS themes through RAMP

1. Bring up a DOS window by going to Start and selecting CMD.
2. Type cd c:\mpxbase\tools.
3. Prepare for the RAMP themes transfer by invoking the themes.bat. This will copy the Themes file from the My Documents directory to the appropriate RAMP transfer directory.
4. Once the theme batch file has completed, the craftsperson can now use RAMP to transfer them to the positions.
5. RAMP the BASE application software only. Do not RAMP BASE datafill.
6. The system will provide an option to Reboot when completed. Select Yes.
7. During the file transfer process, the position will busy out. The system transfers the BASE application and the theme files.
8. Once the transfer is complete, the system will countdown until it is time to Reboot.
9. The system will automatically reboot if the option was selected previously.

If an IWS color set must be modified, use the following recommendations to help prevent IWS display problems:

- The colors listed in Table 10 are the default IWS text colors. It is recommended that these text colors not be used for window color selections.

Color	Predefined Use
Magenta	Alert color
Red	Error color
Light gray	Contrast color

TABLE 10. Default IWS Text Colors

-
- Do not make the window text and the disabled text the same color.
 - Do not make the window background and the window text or disabled text the same color.
 - Do not make the application workspace and the window text or disabled text the same color.
 - Do not make the window text and disabled text the same color as the IWS colorblind error and alert text colors. IWS colorblind error and alert text colors are light gray by default.

5.4 Fonts

IWS provides custom fonts based on standard Microsoft Windows versions of the ANSI character sets. IWS software makes these fonts available automatically, with no installation required. Therefore, this section contains only reference information, not step-by-step instructions.

Between IWS 1.0 and IWS 17.1 the following changes were made to IWS fonts:

- Initial IWS fonts were MPXFixedFont (Latin 1) and MPXIntlFixedFont (Latin 2).
- IWS 11.0 added four more IWS fonts called Bold8FixedFont, Light8FixedFont, ShortBold8FixedFont, and ShortLight8FixedFont. (See *TOPS IWS NTDA Application Guide*, 297-2251-017 for additional information.)
- In IWS 13.0, MPXFixedFont was renamed IWSWinLatin1Fixed, and MPXIntlFixedFont was renamed IWSWinLatin2Fixed. Also, six new international fonts were added:
 - IWSWinArabicFixed
 - IWSWinBalticFixed
 - IWSWinCyrillicFixed
 - IWSWinGreekFixed
 - IWSWinHebrewFixed
 - IWSWinTurkishFixed
- IWS 17.1 added two new IWS fonts called Bold10FixedFont and Light10FixedFont.

If the Windows charmap program is installed, you can view the contents of custom IWS fonts in a character map window as shown in the figures that follow. (To open the charmap program, bring up the Start menu by pressing **Ctrl + Esc**. Then press **R** to choose Run from the Start menu. In the Run window, type **charmap** and press the **Enter** key.)

Charmap can be used to display other Window fonts in addition to the custom IWS ones. The IWS fonts are used in the NTDA windows, the service assistant, in-charge, and MSA windows, and other IWS windows. Some windows use standard Windows fonts.

The following figures show examples of the 12 IWS fonts.

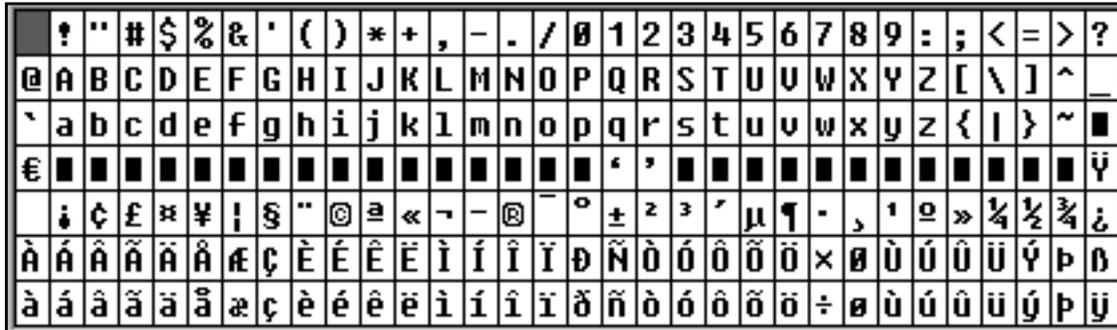


FIGURE 91. Bold8FixedFont (Latin 1)

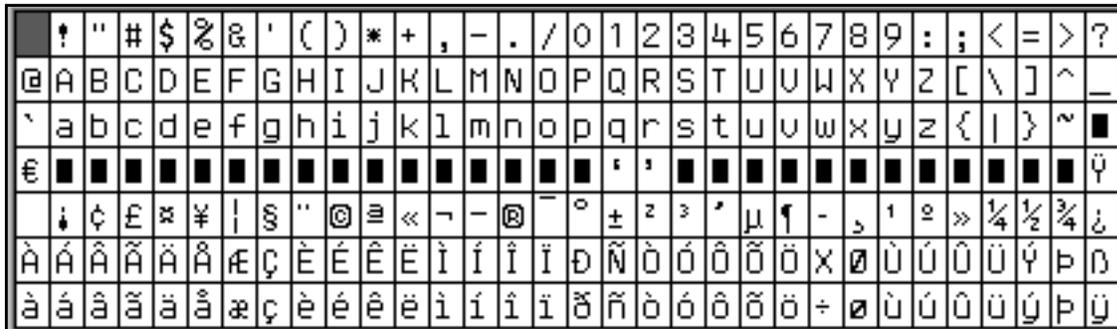


FIGURE 92. Light8FixedFont (Latin 1)

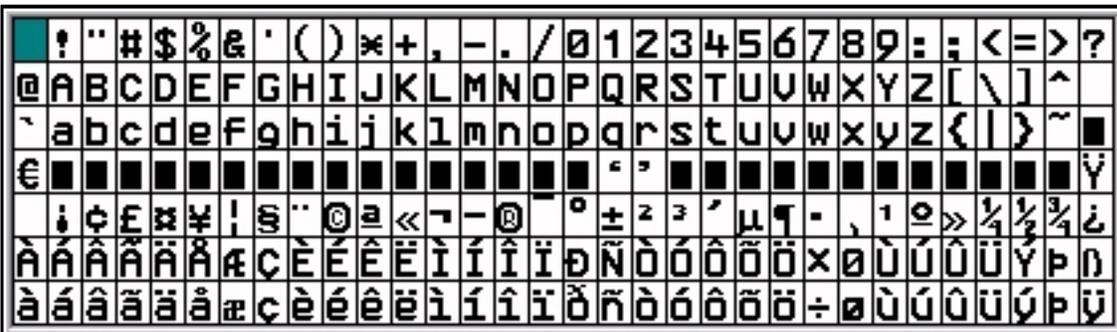


FIGURE 93. Bold10FixedFont (Latin 1)

!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	■	
€	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	ÿ
ı	ç	£	¤	¥	¦	§	¨	©	ª	«	¬	®	¯	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿			
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß	
à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ	

FIGURE 94. Light10FixedFont (Latin 1)

!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	■	
€	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	ÿ
ı	ç	£	¤	¥	¦	§	¨	©	ª	«	¬	®	¯	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿			
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß	
à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ	

FIGURE 95. ShortBold8FixedFont (Latin 1)

!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	■	
€	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	ÿ
ı	ç	£	¤	¥	¦	§	¨	©	ª	«	¬	®	¯	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿			
À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß	
à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ	

FIGURE 96. ShortLight8FixedFont (Latin 1)

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à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

FIGURE 97. IWSWinLatin1Fixed (formerly MPXFixedFont)

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FIGURE 98. IWSWinLatin2Fixed (formerly MPXIntlFixedFont)

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`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{		}	~			
	ء	ا	ب	ج	د	هـ	و	ز	حـ	ط	ظ	عـ	غـ	فـ	قـ	كـ	لـ	مـ	نـ	يـ	ٲ	ٳ	ٴ	ٵ	ٶ	ٷ	ٸ	ٹ	ٺ	ٻ	ټ	ٽ	ٿ
	ء	ا	ب	ج	د	هـ	و	ز	حـ	ط	ظ	عـ	غـ	فـ	قـ	كـ	لـ	مـ	نـ	يـ	ٲ	ٳ	ٴ	ٵ	ٶ	ٷ	ٸ	ٹ	ٺ	ٻ	ټ	ٽ	ٿ
à	ا	ب	ج	د	هـ	و	ز	حـ	ط	ظ	عـ	غـ	فـ	قـ	كـ	لـ	مـ	نـ	يـ	ٲ	ٳ	ٴ	ٵ	ٶ	ٷ	ٸ	ٹ	ٺ	ٻ	ټ	ٽ	ٿ	

FIGURE 99. IWSWinArabicFixed

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		,		"	...	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
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FIGURE 100. IWSWinBalticFixed

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А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я

FIGURE 101. IWSWinCyrillicFixed

	!	"	#	\$	%	&	'	()	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	
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`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{		}	~		
		,	f	"	...	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
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ÿ	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	
ÿ	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	

FIGURE 102. IWSWinGreekFixed

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`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
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FIGURE 103. IWSWinHebrewFixed

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`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
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à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï	ğ	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ı	ş	ÿ

FIGURE 104. IWSWinTurkishFixed

5.5 Screen Saver

Note: For initial configuration information, please refer to Appendix A: Windows XP Professional Configuration.

As of IWS 13.0, a Windows-compliant screen saver can be used to prevent screen burn-in on an IWS operator position. The default IWS screen saver is the 3-D text display. (See Figure 105.) Note that any screen saver used with IWS must be compliant with Windows XP Professional.



FIGURE 105. Default IWS screen saver

When a position is not logged into the DMS switch, the screen saver appears after an interval of inactivity. The default interval of inactivity is five minutes. The default interval of inactivity and screen saver can be changed. Also, a password for the screen saver can be enabled or disabled.

When a screen saver password is not enabled on a position, the screen saver tears down if the position headset is either seated or unseated, if a key is pressed (or if a mouse is moved), or if a position maintenance activity such as RTS or BSY occurs.

Screen saver settings are set in the Windows Control Panel. The IWS provisioning tool has a link to the Control Panel under its Run menu. To modify screen saver settings, open the Control Panel and select Display Properties followed by the Screen Saver folder. At this time, a screen saver password can be enabled or disabled, the interval of inactivity can be set, and a desired screen saver can be selected. Refer to Windows XP Professional documentation for more details on modifying the screen saver.

5.6 Screen Resolution

Note: For initial configuration information, please refer to Appendix A: Windows XP Professional Configuration.

IWS software has been specifically engineered to work well at both 640x480 and 800x600 screen resolutions. The software will work at several higher resolutions, but the appearance is degraded. Unless a different resolution is specifically required by a third party application, Nortel recommends using one of the two supported resolutions. As of IWS17.1, the suggested Nortel resolution is 800x600.

However, using 640x480 screen resolution may be beneficial if you have an older monitor that is smaller than 15". For monitors 15" or higher, a screen resolution of 800x600 is recommended.

Note: This higher resolution of 800x600 is the industry standard. Under Windows XP Professional, the screen resolution of 640x480 is a non-standard option. Future upgrades may not provide this resolution, and users are recommended to use the suggested resolution of 800x600 on all IWSs.

IWS will operate at these additional screen resolutions, but with a degraded appearance:

- 1024 x 768
- 1280 x 1024
- 1600 x 1200

Choosing one of these higher screen resolutions decreases the relative area of the screen that IWS occupies, making it possible to use IWS more effectively with the EISA Client and some third-party applications. The font size does not change, however, making the text appear smaller in relation to the screen.

5.6.1 Changing the screen resolution

Changing the screen resolution for IWS requires only changing the screen resolution for Windows XP Professional. Follow these steps to change the Windows XP Professional screen resolution:

- 1. From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.**

If the IWS base or RAMP application is running, follow substeps a through d to close the application and obtain the Windows desktop.

- a. Press Ctrl+Alt+Delete and select the Task Manager.
- b. Select the Applications Tab if it is not already selected.
- c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
- d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)

-
2. **From the Windows XP Professional desktop, press Ctrl+Esc to open the Start menu.**
 3. **From the Start Menu, press S to open the settings menu, and then press C to open the Control Panel.**
 4. **In the Control Panel window, use the arrow keys to highlight the Display icon, and press Enter.**
 5. **In the open Display Properties window, use the Tab key to move to the folder names at the top of the window, and then use the arrow keys to move to the Settings folder.**
 6. **Tab to the Screen Resolution area of the window.**

Note: The IWS software only supports five of the seven supported screen resolutions. The supported choices are 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024, or 1600 x 1200. Selecting 1152 x 864 or 1600 x 1024 is not permitted.

7. **With the Screen Resolution area selected (that is, the central slider outlined), use the left and right arrow keys to move the slider left and right.**

As the slider moves, it cycles through all seven of the possible screen resolutions, and the terminal illustration above the Desktop area shows the corresponding effect of each choice on the size of a window.

8. **When you have selected a new screen resolution, tab to the OK button, and press Enter.**

The window closes.

9. **Windows XP Professional shows the change in settings, and asks you whether you want to keep this setting. If you answer No, or if you do not respond within 15 seconds, your original settings are restored. If you answer yes, the screen resolution change becomes permanent.**
10. **Reboot the PC. A reboot is required for IWS to work with the screen resolution changes.**

This completes the procedure for changing screen resolution.

5.7 Daylight-Savings Time

Note: For initial configuration information, please refer to Appendix A: Windows XP Professional Configuration.

If the time-zone is set by the user to match the site, the Windows operating system adjusts for daylight-savings time in the form of an automatically triggered window display. If this window is triggered during IWS call processing, it could be very confusing to a telephone operator.

5.8 Tools

This section briefly describes tools provided by commercial software applications. Please refer to the appropriate documentation for further details. These tools are intended to be used by Nortel Networks field support personnel or appropriate operating company support personnel. Basic knowledge about the DOS and Microsoft Windows environments is assumed.

5.8.1 Quadron X.25 Tools

The Quadron qX25 Runtime System and the ARTIC co-processor together provide the X.25 support for the IWS DMS gateway positions (TDM only) configured for a V.35 or an RS-422 link protocol. The specific link protocol setting of a gateway position is made during the setting up of the IWS software (see section 2.1 of this document).

The three Quadron tools are `qx25cnf`, `qxstats`, and `comstat`.

These Quadron tools are installed with the Quadron Driver CD. The RAMP's Profile menu under the Tools menu can be used to enable the Start menu of the DMS gateway prior to running these tools.

To use the **qx25cnf** tool, follow these steps.

1. If the IWS logo window has focus, shut down the IWS base application as follows:
 - a. Press Ctrl+Alt+Delete and select the Task Manager.
 - b. Select the Applications Tab if it is not already selected.
 - c. Use the down arrow key to highlight MPX BASE Application or Remote Access Maintenance Position.
 - d. Use the Tab key to highlight the End Task button and then press the Enter key to end the application. (Close both the IWS base and RAMP applications if both are running.)
2. Press Ctrl+Esc to open the Start menu.
3. Choose the Run option by pressing key R.
 - a. At the Open text box, type the word **cmd** and press the Enter key.
 - b. At the DOS command prompt, type **cd c:\qcf\2kexe** and press Enter.

This can tool be used to verify and configure the X.25 level 2 and level 3 protocol parameters that are maintained in file MPXVPC.PRM under directory C:\QCFPRM (see Table 13 for V.35 or RS422 parameters).

To obtain a display of the protocol parameters currently contained in MPXVPC.PRM, type in full the following command line at a C:\> prompt, and then press the Enter key.

```
C:\qcf\2kexe>qx25cnf c:\qcfprm\mpxvpc.prm
```

To stop the qx25cnf program and exit, press the F1 key, which is the left most one of function keys above the QWERTY keyboard.

The last step is to restart the PC again.

Note: The process for using qx25cnf differs from that for qxstats and comstat in one important way: when using qxstats and comstat, it is critical not to shut down IWS software. The X.25 protocol must be active on the DMS gateway on which qxstats and comstat are run.

To use the **qxstats** tool.

This tool displays X.25 statistics on the number and type of frames and packets sent and received. The utility can also display trace buffers which give a history of frame and packet operations.

To use the qxstats tool, follow these steps:

1. Press Ctrl+Esc to open the Start menu.
2. Choose the Run option by pressing key R.
 - a. At the Open text box, type the word **c:\qcf\2kexe\qxstats 0 2** and press the Enter key.
 - b. Follow the menu prompts on the screen to display Frame history, Packet history, and Both or Diagnostics.

To exit the Quadron tool, press the space bar.

Use the Alt+Tab to bring the window focus back to IWS.

To use the **comstat** tool.

This tool displays statistical variables maintained by the I/O driver and profiler routine. This tool can also display short term statistics.

To use the qxstats tool, follow these steps:

1. Press Ctrl+Esc to open the Start menu.
2. Choose the Run option by pressing key R.
 - a. At the Open text box, type the word **c:\qcf\2kexe\comstat 0 2** and press the Enter key.
 - b. Follow the menu prompts on the screen to display Snapshot. Use the Spacebar to stop incrementing statistics.

To exit the Quadron tool, follow the screen directions.

Use the Alt+Tab to bring the window focus back to IWS.

Note: Refer to the Quadron qX25 Runtime Support Manual for detailed information on the use of the above tools.

5.8.2 Quadron qx25cnf tool settings and parameters

The Quadron qx25cnf tool is used to verify current link protocol settings (specifically the port and TX-clock source parameters listed in Table 11).

Parameter ID	Range of values	Initial Quadron values	Required values for RS-422	Required values for V.35
Default Packet Size	128, 256, 512, 1024 bytes	128 bytes	256 bytes	256 bytes
Maximum Packet Size	128, 256, 512, 1024 bytes	128 bytes	256 bytes	256 bytes
Minimum Packet Size	2 - 4 3 - 8 4 - 16 5 - 32 6 - 64 7 - 128 8 - 256 9 - 512 10 - 1024	4	3	3
Lowest PVC Number	0 - 4095 0 - disabled	0	1	1
Highest PVC Number	0 - 4095	0	48	48
Lowest SVC Number	0 - 4095 0 - disabled	0	1000	1000
Highest SVC Number	0 - 4095	0	1001	1001
Default Packet Window Size	1 - 7	2	7	7
Frame Level Window Size	1 - 7	2	7	7
T1 Timer	1 - 255 sec	3 sec	2 sec	2 sec
T2 Timer	1 - 255 msec	50 msec	100 msec	100 msec
N2 Time-outs (number of T1 time-outs before reset)	1 - 255	20	3	3
Ports	0 - 7	0	Port 1	Port 0
Baud Rate (ext clocking)	0 - 65535 0 - ext clocking 1 - 64K	9600	0	0
Continued				

TABLE 11. Quadron parameters for an RS-422 or V.35 protocol configuration

Parameter ID	Range of values	Initial Quadron values	Required values for RS-422	Required values for V.35
RX Clock Source	1 - internal clock 2 - ext RX clock 3 - ext TX clock	1	2	2
TX Clock Source	1 - internal clock 2 - ext TX clock 3 - ext RX clock	1	3	2
Encoding	1 = NRZ 2 = NRZI 3 = FM1 4 = FM0	1	1	1
Fill Time	1 - 65534 microsec	0	0	0
Network Type	0 = CCITT 1 = DDN 128 CCITT 512 129 = DDN 512	0	0	0
DTE Mode	Y, N	Y	Y	Y
Enable Software Loopback	Y, N	N	N	N
Enable Hardware Loopback	Y, N	N	N	N
Auto Accept Calls	Y, N	N	N	N
Auto Confirm Clear	Y, N	N	N	N
Clear Request Has Diagnostic	Y, N	Y	N	N
Reset Request Has Diagnostic	Y, N	Y	Y	Y
Restart Request Has Diagnostic	Y, N	Y	Y	Y
Packet Size/Window Negotiation	Y, N	Y	N	N
Clear Info Illegal	Y, N	N	N	N
Include Clear Info	Y, N	N	N	N
X.75 Utility Field Packet	Y, N	N	N	N
Enable LPE on Clear	Y, N	N	N	N
Restart Timer (T20)	0 - 255 units unit = 10 seconds	2 units	2 unit	2 unit
Restart Retries (R20)	0 - 255	255	2	2
Call Request Timer (T21)	0 - 255 units unit = 10 seconds	6 units	0 unit	0 unit
Reset Request Timer (T22)	0 - 255 units unit = 10 seconds	2 units	1unit	1unit
Reset Retries (R22)	0 - 255	1	2	2
Continued				

TABLE 11. Quadron parameters for an RS-422 or V.35 protocol configuration

Parameter ID	Range of values	Initial Quadron values	Required values for RS-422	Required values for V.35
Clear Request Timer (T23)	0 - 255 units unit = 10 seconds	6 units	0 unit	0 unit
Clear Request Retries (R23)	0 - 255	255	0	0
Buffer Reserve	1 - 64 buffers	6	6	6
Hysteresis	1 - 64 buffers	6	3	3
SCC Receive Buffers	1 - 64 buffers	14	14	14
SCC Transmit Buffers	1 - 64 buffers	20	20	20
Inhibit M-bit Combine	Y, N	N	N	N
Host Module History	0 - 128	32	127	127
Packet Module History	0 - 128	32	127	127
Frame Module History	0 - 128	32	127	127
Msec per Tick	25 - 65535	50	50	50
Comstat timer	Y, N	Y	Y	Y
Chan 0 Message Queue Depth	1 - 65535	20	512	512
Long frame CRC detect	Y, N	N	N	N
End				

TABLE 11. Quadron parameters for an RS-422 or V.35 protocol configuration

5.8.3 TCP/IP Tools

Two network investigation tools are standard parts of the TCP/IP product offering. The two tools, ping and “netstat, are used to evaluate the state of the IWS LAN.

- **Ping:** This tool can be used at an IWS position to determine if another IWS position is reachable and how long it takes for information to return back to the sending IWS position. The ping tool sends packets of data to another position and request an acknowledgement for each packet sent. It has options to send a specific number of packets, or send as many packets as fast as they are returned, send a packet every so often (user-definable duration), and so on. Type **ping** at a DOS prompt to obtain a help display on the usage and options for this tool.
- **Netstat:** This tool can be used to check the status of the IWS network. It shows active connections to all ports and gives a statistical breakdown of all connections over time. Netstat displays various network-related data structures which can be used to monitor and troubleshoot the IWS network. Detailed statistics about network collisions can be captured. Type **netstat -h** at a DOS prompt to obtain a help display on the usage and options for this tool.

5.9 International Considerations

IWS can be customized to allow operators to work in their own language. In changing IWS to accommodate a different language, all of the following factors must be considered:

-
- the physical keyboard
 - the keyboard language
 - the version of Windows XP Professional

These choices determine the language of keyboard entries. They do not affect the appearance of screen displays, such as IWS text messages. To change screen displays, the IWS language (LNG) files must be appropriately datafilled, as described in section 5.9.4.

Section 5.4 describes the IWS fonts available. Table 56, “International character sets,” on page 247, shows the languages supported by each font.

Note: Windows XP Professional can also be customized for a particular location in other ways besides language. For information on changing the appearance of displays for time, date, number, and currency, refer to the explanation of regional settings in Windows XP Professional documentation.

5.9.1 Choosing a Keyboard

Nortel Networks sells a custom IWS keyboard. This is the keyboard shown in section 1.0 with IWS-specific keys. If you prefer to use a standard PC keyboard, you can map IWS actions to the keys on the standard PC keyboard through the IWS KeyBind utility described in *RAMP and Provisioning Guide*, 297-2251-015.

Nortel Networks provides keycaps only for English and French. One way to have a keyboard equipped for another language is to purchase a standard PC keyboard manufactured for the appropriate country. Alternatively, you can have keycaps manufactured to customize the IWS keyboard for a particular language, or you can simply use a keyboard overlay or clear keycaps with labels.

5.9.2 Changing the Default Keyboard Language

Every version of Windows XP Professional that supports multiple languages has a designated default keyboard language. The default can be changed to any other language within the same Windows code page. This section describes how to change the default keyboard language. For example, in US Windows, the default keyboard language is United States English, but that default can be changed to any language supported by the ISO Latin1 (West European) character set. To see the languages supported by this font, refer to Table 56, “International character sets,” on page 247.

In changing languages, you must consider both the keyboard language and the version of Windows software you are using. This section describes two possible situations.

5.9.2.1 Changing to a Different Language Keyboard and Setting as the Default

This section describes how to change the default language of IWS to another language supported by the same font. For example, if you have U.S. Windows with the custom IWS keyboard or the U.S. version of a standard PC keyboard, and you want to change the keyboard language from English to another Latin1 language such as Spanish, follow the procedures in this section.

For a language change to take effect, Windows XP Professional requires that two tasks must be completed:

- New language keyboard must be added.
- The new language keyboard must be identified as the default.

To add the new language keyboard, follow these steps:

1. **Press Ctrl+Esc to bring up the Windows Start menu.**
2. **Press S to choose Settings.**
3. **Press C to choose Control Panel.**
4. **In the Control Panel window, use the arrow keys to select Regional and Language Options.**

5. Press Enter. The Regional and Language Options window appears.

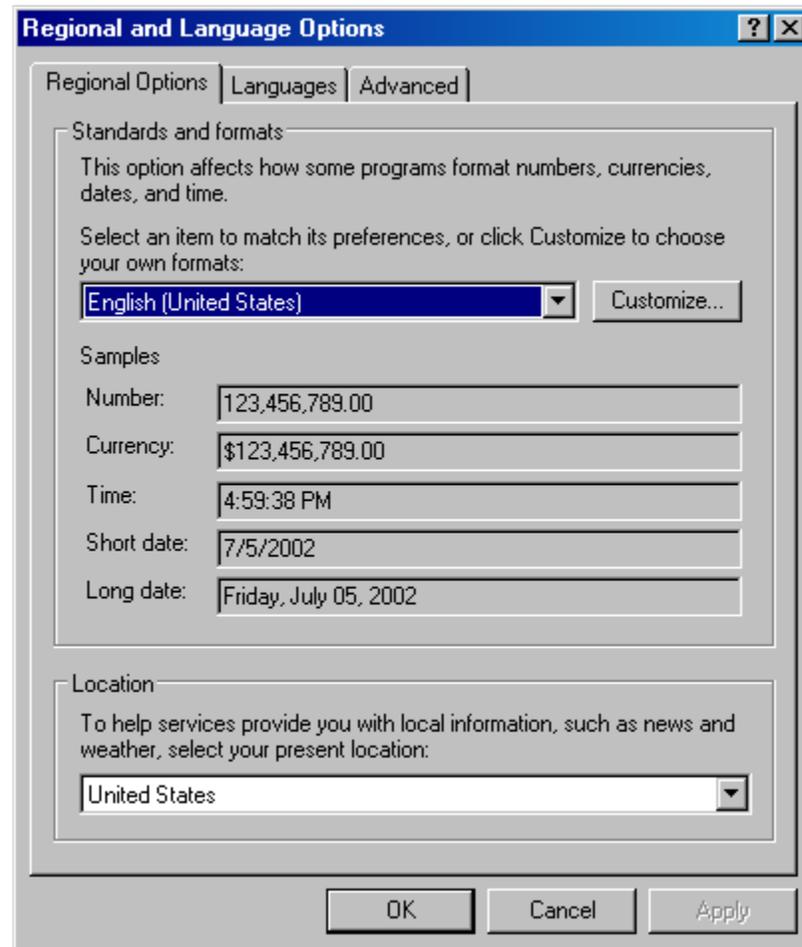


FIGURE 106. Regional and Language Options window

6. Within this window, use the Tab key to move to the top of the window.
7. Use the arrow keys to move to the Languages tab.

8. Press the Tab key to move to the Details button of the Text services and input languages window.

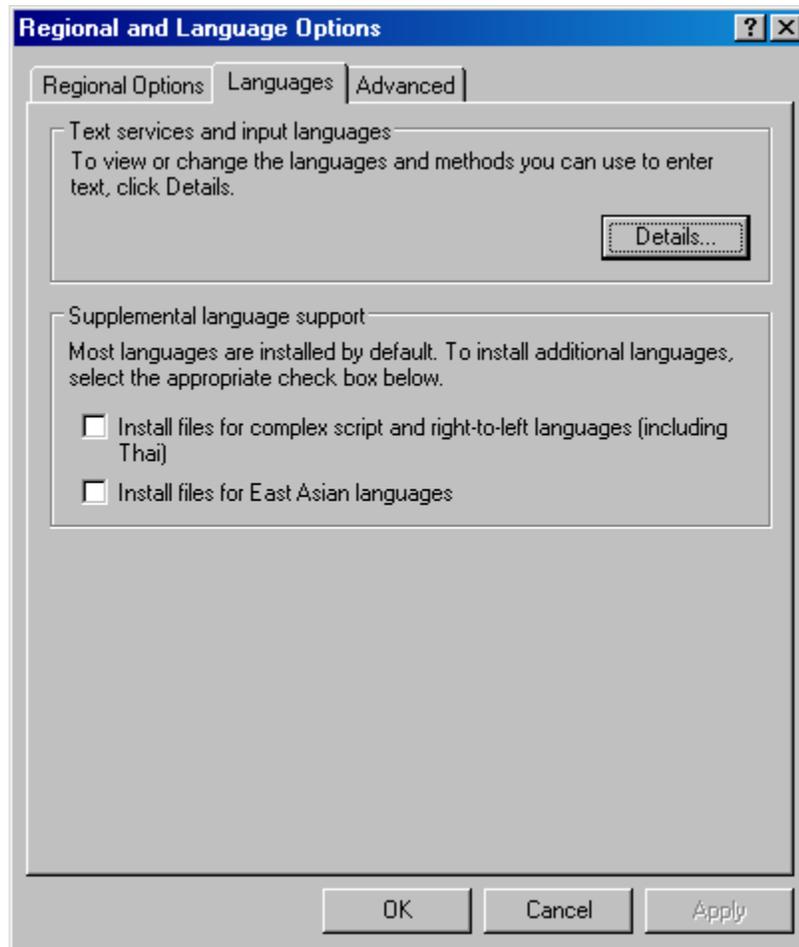


FIGURE 107. Languages detail window

9. 11. Press the Enter key. The Text Services and Input Languages window appears.



FIGURE 108. Text Services and Input Languages window

10. Press the Tab key to move to the Add command button.

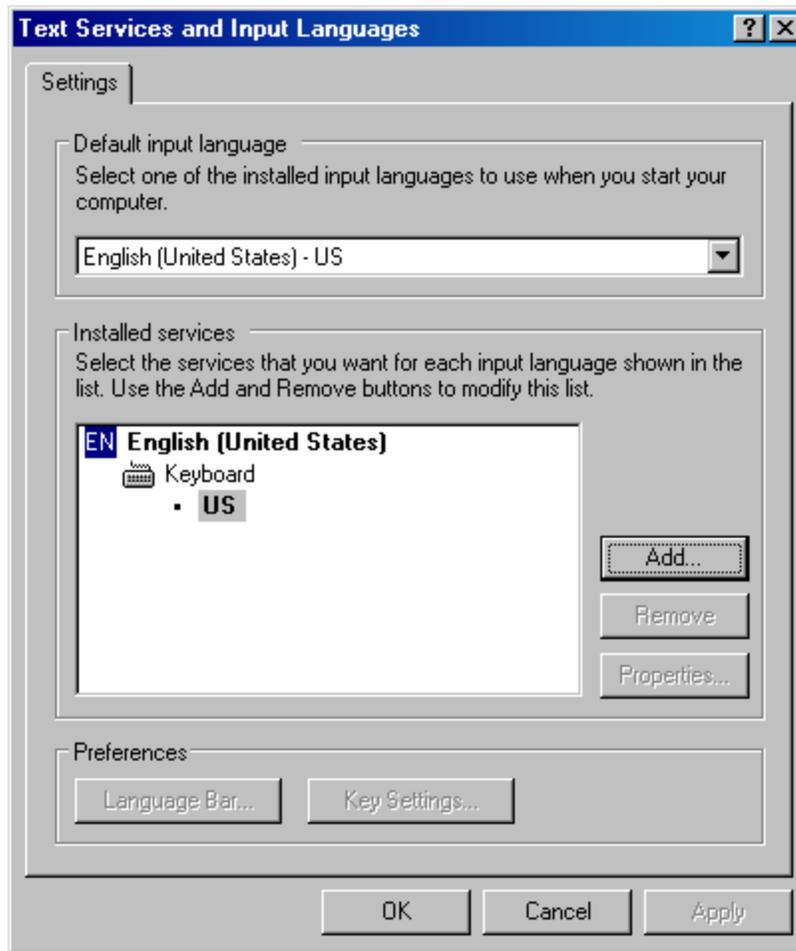


FIGURE 109. Language settings window

11. Press the Enter key. The Add Input language window appears.

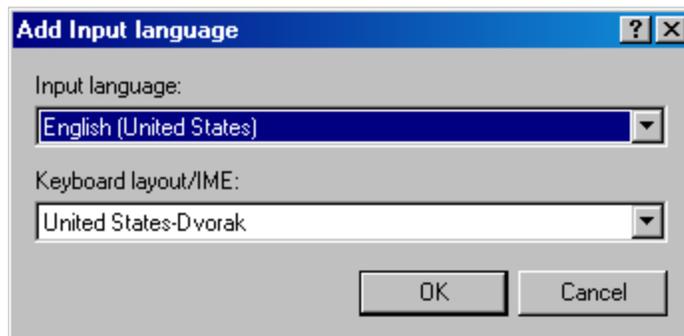


FIGURE 110. Add Input languages window

12. Press the down arrow to make the drop down list appear. For our example, we will select Spanish (Mexico)



FIGURE 111. Input language selection list

13. Press the Tab key to move the OK command button.

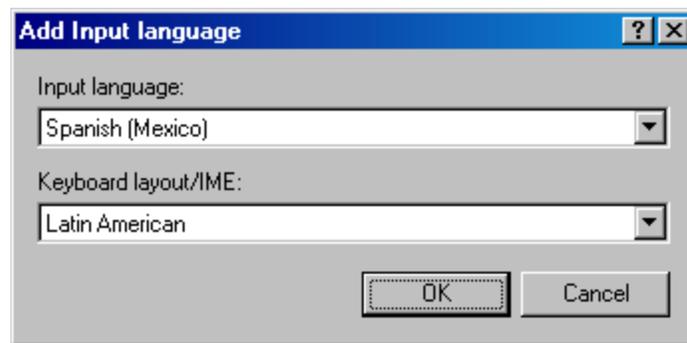


FIGURE 112. Input language selected

14. Press the Enter key. The Text Services and Input Languages window reappears with the new selection added to the Installed services window.



FIGURE 113. Successful language addition

15. The new language keyboard is now added.
16. The next step is to make the newly created language keyboard the default.
17. Press the Tab key to move to the drop down list of Default input language.

18. Press the down arrow to make the drop down appear.



FIGURE 114. Default input language drop down list

19. Press the down arrow again to select Spanish (Mexico) and then Press the Enter key.

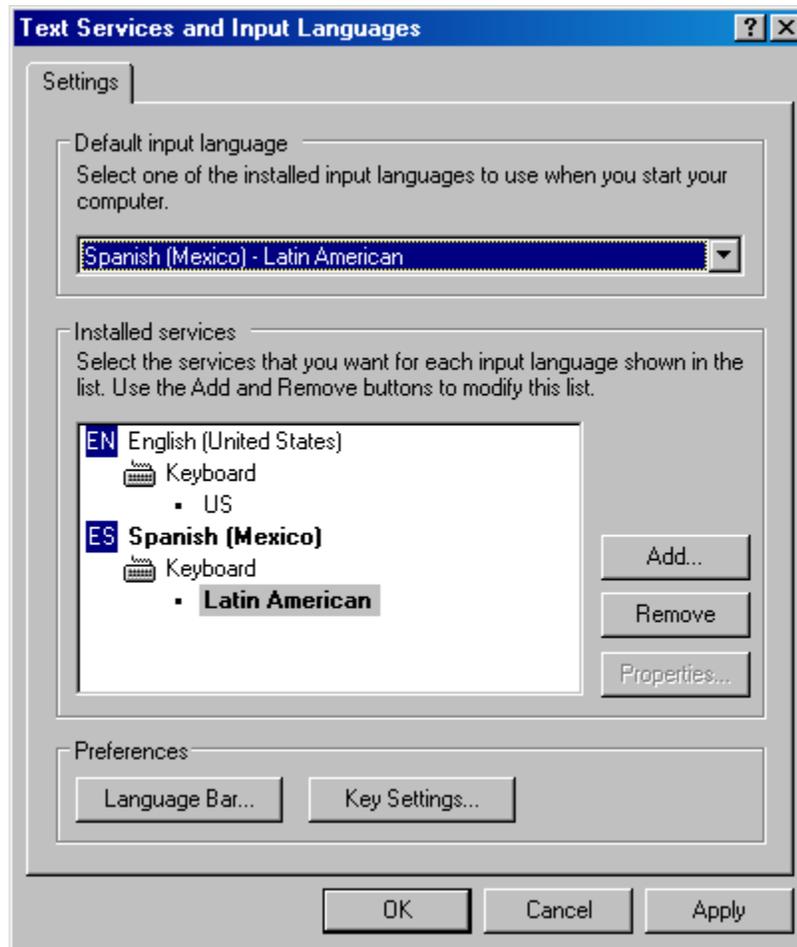


FIGURE 115. Default input language selected

20. Press the Tab key to move to the OK command button.
21. Press the Enter key and this activity is complete.

5.9.3 Languages Not Supported by the default Windows XP Professional setup

To use a language that does not appear by default in the Input language section (typically Asian languages), return to Figure 109, “Language settings window,” on page 188 and select the appropriate selection under “Supplemental language support” and then repeat the previous procedure.

5.9.4 Changing the Language of Screen Displays

Changing the language setting for the keyboard does not change the language of the IWS text messages that display for the operator. Changing these text displays requires changing the datafill in IWS language (LNG) files. The default language in the LNG files is English, but it can be changed to any language supported by the installed character set. To change the datafill, use the provisioning tool described in *RAMP and Provisioning Guide*, 297-2251-015.

Note: Maintenance-related files, such as those for RAMP and logs, do not change, regardless of how the keyboard language is set or how the LNG files are datafilled. Text in these files always appears in English.

5.9.5 Inserting Special or Extended Characters in Text

Since you will normally choose the appropriate keyboard language at installation, it is unlikely that you will ever have to insert special characters in text. In case the need arises, however, this section describes how to insert extended characters into text without switching to another language for all keyboard entry. The explanation assumes a prior knowledge of character map. For basic instruction in how to use the windows character map, refer to Microsoft Windows XP Professional documentation.

5.9.5.1 Copying Characters from the Windows Character Map

If the Windows character map feature is installed on your position, you can use it to copy special or extended characters (those in symbols font or those above ASCII value 127 in the ANSI character set) to the Windows clipboard, where they can be retrieved and inserted into text. To display the character map, follow these steps:

1. **Press Ctrl+Esc to bring up the Windows Start menu.**
2. **Press R to select Run.**
3. **Type Charmap and then press Enter to bring up the Character Map window, and copy the characters from it.**

5.9.5.2 Using Keystrokes to Create Characters

As an alternative to copying the characters, you can select a character in the and note the keystroke combination required to create it (look in the bottom right field of the character map), then press the **Alt** key while typing the appropriate code on the numeric keypad. When you release the **Alt** key, the character appears in your text. For example, pressing **Alt+0233** produces é.

5.9.5.3 Installing the Character Map Applet

If your PC does not have the character map program installed, you can install it by following these steps.

1. **Press Ctrl+Esc to bring up the Windows Start menu.**
2. **Press S to choose Settings.**
3. **Press C to choose Control Panel.**
4. **In the Control Panel window, use the arrow keys to highlight and select Add or Remove Programs.**
5. **Press Enter. The Add or Remove Program Properties window appears.**
6. **Within this window, use the arrow keys to move to the Add/Remove Windows Components.**
7. **Press Enter. The Windows Components Wizard appears.**
8. **Press the Tab key to move the cursor into the window showing the list of components.**
9. **Use the up and down arrow keys to highlight and select Accessories and Utilities.**
10. **Use the Tab key to move to the Details command button.**
11. **Press the Enter key. The Accessories and Utilities window appears.**
12. **Use the Tab key to move to the Details command button.**
13. **Press the Enter key. The Accessories window appears.**
14. **In this window, use the up and down arrow keys to move through the list and highlight Character Map.**
15. **Press the space bar to add a check mark beside Character Map. (To disable Character Map, highlight it and press the spacebar. The checkmark beside it disappears.)**
16. **Use the Tab key to move to the OK button.**
17. **Press Enter. This returns you to the Accessories and Utilities window.**
18. **Use the Tab key to move to the OK button.**
19. **Press Enter. This returns you to the Windows Components Wizard window.**
20. **Use the Tab key to move the OK button in this window.**
21. **Tab to the Next command button.**
22. **Press Enter. Wizard installs the components.**
23. **Press Enter. This closes the wizard.**
24. **Tab to the Close command button.**

25. Press Enter. This closes the Add or Remove Programs window.

6.0 Table (TBL) Files

In the IWS, datafill exists in two forms: IWS base datafill tables and initialization files. Both types are edited in a common fashion as described in the following section. Also, both types share an error reporting warning which is also described in a following section.

This section discusses the IWS datafill tables. These table files contain settings which primarily match up with settings in the CM (Computing Module) of the DMS switch. Each table is described in detail beginning with a general description of the table. Following the general description, the table's fields are presented. Each field is discussed in terms of its field name and range of values. Finally, an example datafill file for the table is provided.

The IWS tables are located at the position. They are not DMS tables, and so, normal DMS table controls do not apply. Many of the IWS tables do, however, correspond directly to specific DMS tables. In these cases, the data in the IWS table must match the data in the DMS tables. The DMS table which corresponds to any particular IWS table is identified in the discussion for that IWS table.

Each IWS table described here resides on the IWS position's hard drive as a separate text file in the directory specified as the default data-path directory in the MPXINI.INI file. Each IWS table file is stored under the standard file name format as follows: filename.ext, where "filename" is the name of the file and "ext" is the extension. The filename under which each IWS table is stored is the same as the table's name.

For example, if the default datapath is C:\MPXBASE\DATAFILL, the IWS Table XTGDSPL is stored in the C:\MPXBASE\DATAFILL directory under the file named XTGDSPL.TBL.

6.1 Editing Datafill Files

The suggested method for making custom changes to table files is by using the IWS provisioning tool (ProvTool). The provisioning tool is preferred for editing datafill files because it provides error checking. Refer to *TOPS IWS RAMP and Provisioning User's Guide* for information on using the IWS provisioning tool,

Note: The IWS provisioning tool has limits on the datafill file size that can be read in. It has a limit of 250KB for a single file. It also has a limit of 3000 lines. If a file exceeds this in size, a message is given that a text editor must be used to modify the file. A fully populated XTGDSPL.TBL file could hit either of these limits. Opening more than two files with a file size limit of 250KB is not recommended as Windows XP Professional memory resource shared by all 16-bit applications might be exhausted, resulting in the possible failure of ProvTool.

Table files are stored as standard DOS ASCII text files. As such, they can also be edited using any Windows or DOS text editor (Windows Notepad, or WordPad). The specifics of file editing and saving depend on the particular text editor used. Refer to the user documentation for your editor to obtain instructions on its use.

Note: Do not enter more than 80 characters per line for any line in these files. This is not an issue when ProvTool is used to edit a file. Also, when a word processor such as Windows Write, or WordPerfect is used to edit the table files, be sure to save the file as TEXT ONLY. If this is not done, the word processor inserts hidden control characters in the file for text formatting. The IWS system can not interpret these control characters.

The IWS data files accept the semicolon (;) as a special character which identifies comments. When the semi-colon is encountered while accessing a line in a data file, the remaining text on the line is ignored. The semicolon may be used to include instructions, explain the tables purpose, place headers on the data fields, and include a comment explaining each line of datafill. The use of comments in this way is highly recommended.

Please note that the IWS datafill control ignores all text following the semicolon on any particular line. This means that the comments can not come before the data. Comments can only start at the beginning of a line if that line contains no data. If the line does contain data, the semicolon and comment must be placed after the data. The fields in the data files must be separated by at least one space, or at least one tab.

The fields do not need to start at the very left of a datafill line. This is possible because the IWS datafill control ignores all spaces or tabs at the beginning of a line.

It is not considered an error and no error report is generated if duplicate table entries are encountered for tables. As table entries are read into memory, duplicate entries will overwrite previous entries making the last entry the one that will be used.

Text strings may contain extended characters in the ANSI character set. Add these by pressing Alt+xxxx, where the x sequence is a series of digits that represents an extended character. Enter the digits on the numeric keypad.

6.2 Distributing Datafill Files

Most datafill files can be propagated across all the positions in an operating company. This can be done three different ways:

- Through the RAMP software distribution configuration sets. Refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015.
- Another way to distribute datafill files across each position in a LAN is to use the default Windows FTP application available on each position. A user file is supplied with a default user and password. Refer to Windows documentation for more information on how to transfer files using FTP.
- A third way is to first edit the files on one position, using the DOS **COPY** command to copy the files to a floppy disk, and then copying the files to each position that requires the same datafill. A custom batch file may be desirable to facilitate datafill propagation.

6.3 Error Reporting

Care must be taken to ensure that each data file is created accurately. If the IWS can not interpret a data file as it reads in the data fields during initialization, a fatal condition is declared and an error message box is displayed on the screen.

EXCEPTIONS:

Maximum key action values are different for each defined Key Set in the XKBOARD table. If a key action greater than the maximum defined key action for the Generic Key Set is datafilled, the key, when pressed, has no functionality.

All errors encountered in IWS datafill during position initialization are assumed to be fatal errors. Examples include missing tables, field values out of range, inappropriate value (i.e text string where integer value expected). When these errors are encountered, initialization of the application reading the table fails. The error has to be corrected in order to bring up the IWS position.

6.4 Base Datafill Tables

The following tables are provided by the IWS base software. Many of these data files must match information provided in DMS tables. Refer to each table section for which DMS tables are used for this correlation. The IWS base API provides functions to read these tables. During manual editing, do not enter more than 80 characters per line for any line in these files (if using the IWS provisioning tool this is not an issue.) Refer to specific applications for information on how this datafill is used.

Table File	Page	Description
XALTRTE.TBL	202	Alternate Route table
XAPPL.TBL	204	Applications menu table
XCASTS.TBL	206	Call Arrival Status table
XCDF.A.TBL	208	Country Name table
XCLLORIG.TBL	210	Call Origination table
XCORGXSC.TBL	213	Call Origination type Scripting Cross Reference table
XCOTHS.D.TBL	215	Call Origination Type Threshold table
XCT4Q.TBL	218	Call Type for Queuing table
XCT4QMNU.TBL	221	Call Type for Queuing menu table
XCT4QXSC.TBL	225	Call Type for Queuing Scripting Cross Reference table
XCTRYDIR.TBL	227	Country Direct table
XDARBLG.TBL	228	DA Restricted Billing table
XDBCLASS.TBL	229	Class index number table
XFNCTS.TBL	231	Functions menu table
XKB101.TBL	234	Standard 101 keyboard table
XKB122.TBL	234	IBM 122 keyboard table
XKBHNYWL.TBL	234	Cherry/Honeywell keyboard table
XKBOARD.TBL	234	Keyboard table
XKEYMAC.TBL	253	Language Name table
XLANG.TBL	255	IWS Key Macros Definition table
XMEDSPID.TBL		Message editor SPID mapping table
XMEDTG.TBL		Message editor trunk group mapping table
XMEEMLDM.TBL		Message editor E-mail domains table
XMEEMLNM.TBL		Message editor E-mail names (addresses) table
XMEMSG.TBL		Message editor message template file
XMESMSDM.TBL		Message editor SMS domains table
XMETRB.TBL		Message editor trouble menu table
XOGTMENU.TBL	258	Outtrunks menu table
XOLNSEQP.TBL	260	OLNS Equipment table

TABLE 12. IWS Base Datafill Tables

Table File	Page	Description
XOLNSRST.TBL	262	OLNS Restriction table
XRBLG.TBL	264	Restricted Billing table
XRCXSC.TBL	266	Reason Code Scripting Cross Reference table
XSCRULES.TBL	268	Enhanced Scripting Generic Cross Reference table
XSERVS.TBL	271	Services menu table
XSPIDXSC.TBL	274	SPID Scripting Cross Reference table
XTGDSPL.TBL	276	Trunk Group Display table
XTROUBLE.TBL	278	Trouble menu table

TABLE 12. IWS Base Datafill Tables

6.4.1 Table XALTRTE

This is the Alternate Route table. It associates a text string with the DMS Alternate Route Number and Switch ID. It is displayed in a location specified by the application using this table.

6.4.1.1 XALTRTE Field Descriptions

Table 13 shows the range of values for the fields belonging to table XALTRTE. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0 - 31
Alternate Route Index	1 - 128
Alternate Route Name	Up to 3 ASCII characters

TABLE 13. XALTRTE Fields

Switch ID: This value specifies the Switch ID that contains the alternate route index and alternate route name reflected in the datafill table XALTRTE.TBL.

Alternate Route Index: This value specifies the alternate route index. The index must be unique but does not have to be in ascending order.

Alternate Route Name: This is a normal ASCII text string for display. The text must be enclosed in double quotes. The text strings that appear in this field must match the datafill of DMS table IALTRTE.

6.4.1.2 XALTRTE Sample Datafill

The sample table below illustrates the format of file XALTRTE.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XALTRTE.TBL
; -----
;
; Description:
; -----
;     Alternate Route table
;
;     This table associates a text string with the DMS
;     Alternate Route index found in the DMS table IALTRTE.
;
; Display:
; -----
;     Applications may display this text as an indication
;     to the operator of the Alternate Route name.
;
; Fields:
; -----
;     Switch ID:           Range 0 - 31.
;
;     Alternate Route index: Range 1 - 128.
;
;     Alternate Route name: Text string of 1 to 3 characters.
;                          This is the name associated with
;                          the given index.
;-
; Notes:
; -----
; * String lengths of datafill lines should not exceed 80 characters.
; * Switch IDs and Alternate Route indexes DO NOT have to be in order.
;
;
; Switch ID           Alt Route #           Alt Route Name
; -----
;     0                1                "rt1"
;     0                2                "rt2"
;     0                3                "rt3"
;     0                4                "rt4"
;     0                5                "rt5"
;     0                6                "rt6"
;     0                7                "rt7"
;     0                8                "rt8"
;     0                15               "GER"
;     0                128              "LON"
;     0                9                "rt9"
;     0                10               "r10"
;     0                11               "r11"
;     0                12               "r12"
;     0                13               "r13"
;     0                14               "r14"
;
;

```

6.4.2 Table XAPPL

This table lists the information about each of the applications that are provided to the operator. This table has no correlation to any DMS datafill table. The applications listed in this table are used to create the IWS Applications menu which is used to initiate sessions with any of the applications. These application numbers listed in this table are used as the indexes for the applications listed in the Applications menu. More information on the Applications menu can be found in document *TOPS IWS Base HMI Application Guide*.

Note: The IWS Screen Saver should not be used in the position if DOS based applications are accessed via the Applications menu prior to DMS logon for Administrative Application Sessions.

6.4.2.1 XAPPL Field Descriptions

Table 14 shows the range of values for the fields belonging to IWS table XAPPL. The table is followed by a description of each field.

Field Name	Range of Values
Application Number	0 - 31 decimal
Application Description	Up to 19 ASCII characters
Application Tag	Up to 8 ASCII characters
Extra Data Indicator	Y/N

TABLE 14. XAPPL Fields

Application Number: This is the number of the application. This number is used as the index for the application in the Applications menu.

Application Description: This short descriptive ASCII text string is displayed in the Applications menu window. It must be enclosed in double quotes (" ").

Application Tag: This ASCII text string uniquely identifies the position application/task that provides access to this application. It must be enclosed in double quotes (" "). This field **must exactly** match the tag documented by the application.

Extra Data Indicator: Indicates if the operator should be prompted for extra data input when this application is chosen from the menu. Whether this capability should be allowed for an application should be specified in the application documentation. A value of "Y" in this field indicates to prompt for extra data. A value of "N" in this field indicates to not prompt for extra data. No double quotes are necessary.

6.4.2.2 XAPPL Sample Datafill

The sample table below illustrates the format of file XAPPL.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XAPPL.TBL
; -----
;
; Description:
; -----
;     MPX-IWS Application table
;
;     This table lists information about each of the MPX-IWS
;     Applications that can be accessed via the Applications
;     Menu.
;
; Display:
; -----
;     Application description      Text for the Applications menu
;
; Fields:
; -----
;     Application Num      The number of the application. This
;                          number must be between 0 and 31.
;
;     Application Desc     A quoted text string with a max Length of 19
;                          characters which provides the name of the
;                          application.
;
;     Appl Tag             A quoted text string with a max length of 8
;                          characters that identifies the position
;                          executable which provides the application. This
;                          field MUST EXACTLY match the Tag documented by
;                          the application.
;
;     Extra Data          Indicates if the operator should be prompted for
;     Indicator            for extra data input when this application is
;                          chosen from the menu. Whether this capability
;                          should be allowed for an application should be
;                          specified in the application documentation.
;                          A value of Y indicates to prompt for extra data.
;                          A value of N indicates to not prompt
;                          for extra data.
;-
; Note:
; -----
;     This table is valid with 0 to 32 tuples.
;
;     String lengths of datafill lines should not exceed 80 characters.
;
;Appl      Application      Appl      Extra Data
;Num       Description      Tag       Indicator
;-----
;
; The following are example entries:
;
; 0        "OIA - Indirect"  "MPXOIA"  N
; 1        "OIA - Direct"   "MPXOIA"  Y
;
; end of data

```

6.4.3 Table XCASTS

This is the Call Arrival Status table. It equates an integer with a text string which is displayed in a location specified by the application using this table.

This table should be coordinated with the datafill of several DMS tables. See the discussion of the Display Label field below for details on this parallel datafill.

6.4.3.1 XCASTS Field Descriptions

Table 15 shows the range of values for the fields belonging to IWS table XCASTS. The table is followed by a description of each field.

Field Name	Range of Values
CA Status	0-8 decimal
Display Label	Up to 10 ASCII characters

TABLE 15. XCASTS Fields

CA Status: This value specifies the arrival status of the call.

Display Label: This field contains a normal ASCII text string. The text must be enclosed in double quotes.

The text that is placed in this field should have the same meaning as those datafilled in the DMS tables listed below:

Value 0: This value is used to indicate a standard call arrival. There is no special text string displayed for value 0 even if a display label for value 0 is datafilled in table XCASTS. There is no direct association with a DMS table.

Value 1: The text string associated with value 1 is used to indicate automatic directory assistance call completion. There is no direct association with a DMS table.

Value 2: The text string associated with value 2 is used to indicate manual billing number verification and corresponds to the string datafilled in the tuple TOPS_MAN_DATABASE_ORIG_DISPLAY of DMS table OFCVAR.

Value 3: The text string associated with value 3 is used to indicate AABS collect and corresponds to the string datafilled in the tuple OPR_0PLUS_COL_DISPLAY of DMS table VSNOPT.

Value 4: The text string associated with value 4 is used to indicate AABS third number and corresponds to the string datafilled in the tuple OPR_0PLUS_3RD_DISPLAY of DMS table VSNOPT.

Value 5: The text string associated with value 5 is used to indicate AABS collect with party attached and corresponds to the string datafilled in the tuple OPR_0PLUS_CLDCON_DISPLAY of DMS table VSNOPT.

Value 6: The text string associated with value 6 is used to indicate AABS third number with party attached and corresponds to the string datafilled in the tuple OPR_0PLUS_3RDCON_DISPLAY of DMS table VSNOPT.

Value 7: The text string associated with value 7 is used to indicate intercept special. There is no direct association with a DMS table.

Value 8: The text string associated with value 8 is used to indicate intercept cut through. There is no direct association with a DMS table.

6.4.3.2 XCASTS Sample Datafill

The sample table below illustrates the format of file XCASTS.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XCASTS.TBL
; -----
;
; Description:
; -----
;   Call Arrival Status table
;
;   This datafill table associates a text string with the
;   DMS Call Arrival Status field.
;
; Display:
; -----
;   Applications may display this text as an indication
;   to the operator of the Call Arrival Status.
;
; Fields:
; -----
;   CA Status Call arrival type: range 1 - 8
;
;   Display Label String associated with the Call Arrival Status.
;   Max string length is 10 characters.
;-
; Note:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;
; CA Status   Display Label
; -----
;
;   1         "ADACC"       ;automatic da call completion
;   2         "MANVAL"     ;manual billing number verification
;   3         "COL"        ;automated alternate billing service collect
;   4         "3RD"        ;aabs third number
;   5         "COLCON"     ;aabs collect with party attached
;   6         "3RDCON"    ;aabs third number w/ party attached
;   7         "Int-Spl"    ;intercept special
;   8         "Int-Cut"    ;intercept cut through
;
;

```

6.4.4 Table XC DFA

This is the Country Name table. It associates a text string with the DMS Country Name ID. It is displayed in a location specified by the application using this table.

6.4.4.1 XC DFA Field Descriptions

Table 16 shows the range of values for the fields belonging to table XC DFA. The table is followed by a description of each field.

Field Name	Range of Values
Country ID	1 - 999
Country Label	Up to 25 ASCII characters

TABLE 16. XC DFA Fields

Country ID: This value specifies the country name index.

Country Label: This is a normal ASCII text string for display. The text must be enclosed in double quotes. The text strings that appear in this field must appropriately represent the country codes as they are defined in DMS table CCTR.

6.4.4.2 XCDFA Sample Datafill

The sample table below illustrates the format of file XCDFA.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XCDFA.TBL
; -----
;
; Description:
; -----
;     Foreign Assistance table
;
;     This table associates a text string with the DMS
;     country name ID.
;
; Display:
; -----
;     Applications may display this text as an indication
;     to the operator of the Country Name.
;
; Fields:
; -----
;     Country ID      Country ID index, range 1 - 999
;
;     Country Label   Country text string
;                     The max string length is 25 characters.
;
; Comments:
; -----
;     The maximum allowable number of tuples for this table
;     is 255. All tuples beyond 255 will be ignored.
;-
;
; Notes:
; -----
;     * String lengths of datafill lines should not exceed 80
;     characters.
;
;
; Country ID      Country Label
; -----
;     30           "Fed. Rep. of Greece" ; Greece
;     33           "France"             ; France
;     39           "Italy"              ; Italy
;     44           "United Kingdom"     ; United Kingdom
;     52           "Mexico"             ; Mexico
;     54           "Argentina"          ; Argentina
;     58           "Venezuela"          ; Venezuela
;     81           "Japan"              ; Japan
;
;

```

6.4.5 Table XCLLORIG

This is the Call Origination table. It equates an integer from 0 to 100 with a text string indicating the call origination type. It is displayed in a location specified by the application using this table.

This table should correspond to the DMS table TOPS. Any call origination type that is customized in DMS table TOPS should also be customized in XCLLORIG.TBL.

6.4.5.1 XCLLORIG Field Descriptions

Table 17 shows the range of values for the fields belonging to IWS table XCLLORIG. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0-31 decimal
CO Type	0-100 decimal
Display Label	Up to 10 ASCII characters

TABLE 17. XCLLORIG Fields

Switch ID: This value specifies the switch ID from which the call originated.

CO Type: This value specifies the call origination type.

Display Label: This is a normal ASCII text string. It can be any meaningful text. The text must be enclosed in double quotes.

6.4.5.2 XCLLORIG Sample Datafill

The sample table below illustrates the format of file XCLLORIG.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XCLLORIG.TBL
; -----
;
; Description:
; -----
;   Call Origination table
;
;   This table associates a text string with the DMS Call
;   Origination types.
;
; Display
; -----
;   Applications may display this text as an indication
;   to the operator of the Call Origination Type of the
;   current call.
;
; Fields:
; -----
;
; Switch ID      The originating switch ID, range 0 - 31
;
; CO Type        The call origination type, range 0 - 100
;
; Display Label  Text string associated with the Call
;                Origination type.
;                The max string length is 10 characters
;
; Comments:
; -----
;
;   The switch ID in this table must correspond to those
;   datafilled in DMS table OCOFC.
;-
; Notes:
; -----
;
;   String lengths of datafill lines should not exceed 80 characters.
;
;
; Switch ID      CO Type      CO Type Text
; -----
;   0            0            "?"                ; unspecified
;   0            1            "0"                ; zero minus
;   0            2            "0+"               ; zero plus
;   0            3            "1+"               ; one plus
;   0            4            "CAMA"              ; CAMA
;   0            5            "RCAMA"             ; RCAMA
;   0            6            "0"                ; delay
;   0            7            "Inward"           ; 121
;   0            8            "131"              ; 131
;   0            9            "141"              ; 141
;   0            10           "151"              ; 151
;   0            11           "161"              ; 161
;   0            12           "171"              ; 171
;   0            13           "181"              ; 181

```

```
0      14      "191"      ; 191
0      15      "555"      ; 555
0      16      "1150"     ; 1150
0      17      "1151"     ; 1151
0      18      "1152"     ; 1152
0      19      "1153"     ; 1153
0      20      "1154"     ; 1154
0      21      "1155"     ; 1155
0      22      "1156"     ; 1156
0      23      "1157"     ; 1157
0      24      "1158"     ; 1158
0      25      "1159"     ; 1159
0      26      "1160"     ; 1160
0      27      "1161"     ; 1161
0      28      "1162"     ; 1162
0      29      "Toll Sta"  ; toll station
0      30      "Toll Sub"  ; toll subscriber
0      31      "AttPAY Sta" ; attendant pay station
0      32      "alarm"    ; alarm
0      33      "intercept" ; intercept
0      34      "211"      ; 211
0      35      "311"      ; 311
0      36      "411"      ; 411
0      37      "511"      ; 511
0      38      "611"      ; 611
0      39      "711"      ; 711
0      40      "811"      ; 811
0      41      "911"      ; 911
0      42      "Mobile"   ; Mobile
0      43      "999"      ; 999
0      44      "HOM555"   ; home 555
0      45      "FOR555"   ; foreign 555
0      46      "Spare_1"  ;
0      47      "Spare_2"  ;
0      48      "Spare_3"  ;
0      49      "Spare_4"  ;
0      50      "Spare_5"  ;
0      51      "OvSeas 141" ; overseas operator 141
0      52      "OvSeas 151" ; overseas operator 151
0      53      "OvOvs"    ; overseas operator center ovs
0      54      "OvManual"  ; overseas operator manual
0      55      "OvSeas 801" ; overseas operator 801
0      56      "Ov Delay"  ; overseas operator delay
0      57      "OvDataBase" ; overseas operator data base
0      58      "INTS"     ;
0      59      "coin test" ; coin test ...
0      60      "BkCallOrig" ; book call origination
0      61      "BkCdbRc11" ; book call database recall
0      62      "CntryDir"  ; country direct
0      63      "IN Intwrk" ; in interworking
0      64      "Spl LRN"   ; special lrn
;
;
;
```

6.4.6 Table XCORGXSC

This table provides a cross reference between the Call Origination Types datafilled in XCLLORIG.TBL and the Script IDs datafilled in SCRPTSCR.SCR. This table file is used in standard scripting mode. This file is ignored if enhanced scripting is used.

6.4.6.1 XCORGXSC Field Descriptions

Table 18 shows the range of values for the fields belonging to IWS table XCORGXSC. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0-31 decimal
CO Type	0-100 decimal
Script ID	1-300 decimal

TABLE 18. XCORGXSC Fields

Switch ID: This value specifies the switch ID from which the call originated.

CO Type: This value specifies the call origination type. These values have the same meaning as the call origination type values datafilled in the XCLLORIG IWS datafill table.

Script ID: This value specifies the Script ID of the script message associated with the CO Type. These values have the same meaning as the Script ID values datafilled in the SCRPTSCR.SCR IWS datafill table.

6.4.6.2 XCORGXSC Sample Datafill

The sample table below illustrates the format of file XCORGXSC.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XCORGXSC.TBL
; -----
;
; Description:
; -----
;     Call Origination to Script ID table
;
;     This table associates a script title/message
;     with the DMS Call Origination types.
;
; Display
; -----
;     Applications may display the script title/message
;     as an indication to the operator of the Call Origination Type
;     of the current call. Brief call handling instructions may
;     also be included.
;
;
; Fields:
; -----
;
; Switch ID      The originating switch ID, range 0 - 31
;
; CO Type        The call origination type, range from 0 - 100
;
; Script ID      The ID of script message associated with the Call
;                 Origination type. The valid range for Script IDs
;                 is 1 to 300.
;
; Comments:
; -----
;     The switch ID in this table must correspond to those
;     datafilled in DMS table OCOFC.
;-
; Notes:
; -----
;     String lengths of datafill lines should not exceed 80 characters.
;
; In the following example, if Script 1 exists, it will be displayed for
; Switch ID 0 and Call Origination Type 1.
;
; Switch ID      CO Type      Script ID
; -----      -----      -----
;      0          1            1
;
;

```

6.4.7 Table XCOTHSD

This is the Call Origination Type Threshold table. It matches a specific threshold for the call timer. The default datafill of the threshold for this table is 0.

6.4.7.1 XCOTHSD Field Descriptions

Table 17 shows the range of values for the fields belonging to table XCOTHSD. The table is followed by a description of each field.

Field Name	Range of Values
CO Type	0-100
Threshold Minute	0-59
Threshold Second	0-59

TABLE 19. XCOTHSD Fields

CO Type: This value specifies the call origination type.

Threshold Minute: This value specifies the threshold in minutes for the call timer.

Threshold Second: This value specifies the threshold in seconds for the call timer.

6.4.7.2 XCOTHSD Sample Datafill

The sample table below illustrates the format of file XCOTHSD.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:   XCOTHSD.TBL
; -----
;
; Description:
; -----
;   Call Origination Threshold Table
;
;   This table associates a threshold with a DMS Call Origination type.
;
; Display
; -----
;
;   A call timer, which is invoked upon arrival of a call with specific
;   call origination type, can use the associated threshold to change
;   its visual display.
;
; Fields:
; -----
;
; CO Type           The call origination type, range from 0 - 100
;
; Threshold Minute  The associated threshold value in minutes,
;                   range 0 - 59.
;
;

```

```

; Threshold Second      The associated threshold value in Seconds,
;                        range 0 - 59.
;
;
;
; Comments:
; -----
; There is no threshold for the Call Timer if the threshold value in the
; table is set to 0, and it is the default value.
;
;
; Notes:
; -----
; None.
;
;

```

CO Type	Threshold Minute	Threshold Second	
-----	-----	-----	
0	0	0	; unspecified
1	0	0	; zero minus
2	0	0	; zero plus
3	0	0	; one plus
4	0	0	; CAMA
5	0	0	; RCAMA
6	0	0	; Delay
7	0	0	; 121
8	0	0	; 131
9	0	0	; 141
10	0	0	; 151
11	0	0	; 161
12	0	0	; 171
13	0	0	; 181
14	0	0	; 191
15	0	0	; 555
16	0	0	; 1150
17	0	0	; 1151
18	0	0	; 1152
19	0	0	; 1153
20	0	0	; 1154
21	0	0	; 1155
22	0	0	; 1156
23	0	0	; 1157
24	0	0	; 1158
25	0	0	; 1159
26	0	0	; 1160

27	0	0	; 1161
28	0	0	; 1162
29	0	0	; toll station
30	0	0	; toll subscriber
31	0	0	; attendant pay station
32	0	0	; alarm
33	0	0	; intercept
34	0	0	; 211
35	0	0	; 311
36	0	0	; 411
37	0	0	; 511
38	0	0	; 611
39	0	0	; 711
40	0	0	; 811
41	0	0	; 911
42	0	0	; Mobile
43	0	0	; 999
44	0	0	; home 555
45	0	0	; foreign 555
46	0	0	; spare1
47	0	0	; spare2
48	0	0	; spare3
49	0	0	; spare4
50	0	0	; spare5
51	0	0	;overseas operator 141
51	0	0	;overseas operator 151
53	0	0	;overseas operator center OVS
54	0	0	;overseas operator manual
55	0	0	;overseas operator 801
56	0	0	;overseas operator delay
57	0	0	;overseas operator data base
58	0	0	; INTS
59	0	0	; coin test...
60	0	0	; book call origination
61	0	0	; book call database recall
62	0	0	; country direct

6.4.8 Table XCT4Q

This is the Call Type for Queuing (CT4Q) table. It equates an integer from 0 to 2046 with a text string that indicates the CT4Q name. It is displayed in a location specified by the application using this table. The table also allows control over initial cursor location at call arrival.

This table is required for QMS positions.

6.4.8.1 XCT4Q Field Descriptions

Table 20 shows the range of values for the fields belonging to table XCT4Q. The table is followed by a description of each field.

Field name	Range of values
CT4Q ID	0-2046 decimal
CT4Q Name	Up to 9 ASCII characters
CO Display	Y/N
Cursor Position	0-5

TABLE 20. XCT4Q Fields

CT4Q ID: This field contains an integer value that represents a CT4Q (Call Type for Queuing). This ID must parallel datafill in the CT4QNAMS table in the DMS.

CT4Q Name: This is a text string containing the CT4Q name. The characters must be enclosed in double quotes.

CO Display: This field specifies whether the text string should be displayed at call arrival. If the CT4Q name should be displayed at call arrival, a “Y” should be placed in this field. If the CT4Q name should not be displayed on call arrival, this field should contain an “N”. No double quotes are necessary.

Cursor Position: This integer is associated with the operator entry fields of the IWS Billing (previously NTOA; note that NTOA is still used for the billing application tag) application. If this field contains zero (0), the software determines where to place the cursor based on the call type and class of service. Otherwise, except for IN Fallback calls, the value in this field specifies the field in which to place the cursor at call arrival according to the following mapping.

Note: For IN Fallback calls, the cursor is always placed in the Special field (Spl) regardless of what integer is set in the cursor position field of this table.

Mapping:

- 0 - Cursor placement is based on call origination type, service, and if available, the station class.
- 1 - Cursor placed in Calling entry field (Clg)
- 2 - Cursor placed in Called entry field (Cld)
- 3 - Cursor placed in Special field (Spl)
- 4 - Cursor placed in InterLATA Carrier Field (IC)
- 5 - Cursor placed in Miscellaneous Field (Misc)

6.4.8.2 XCT4Q Sample Datafill

The sample table below illustrates the format of file XCT4Q.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
;-----
; Table: XCT4Q.TBL
;-----
;
; Description:
;-----
;       This table associates a text string to a DMS Call Type
;       for Queueing (CT4Q). It also designates the initial
;       cursor position and softkey set.
;
;       This table is only required for QMS positions.
;
; Display:
;-----
;       Applications may display this text as an indication
;       to the operator of the Call Type for Queueing for
;       the current call.
;
; Fields:
;-----
;       CT4Q ID           The Call Type for Queueing, range: 0 - 2046
;
;       CT4Q Name         Text string associated with the CT4Q ID.
;                         The string max length is 9 characters.
;
;       CO Display        Specifies whether or not to display
;                         the CT at call arrival.
;                         If Y, display CT;
;                         if N, do not display CT.
;
;       Cursor Position   Specifies which Call Processing field
;                         the cursor should be positioned in.
;
;
;       Note: For IN Fallback calls, the cursor is
;       always placed in the Special field regardless
;       of what integer is set in the cursor position
;       field of this table.
;
;

```

```
;          0 - cursor placement is based upon the call
;          origination type, service and station
;          class
;          1 - placed in the Calling entry fld
;          2 - placed in the Called entry fld
;          3 - placed in the Special entry fld
;          4 - placed in the InterLATA entry fld
;          5 - placed in the Misc entry fld
;
;          Note:If it is desired that the cursor position
;          is to be determined from the call arrival
;          information, place a value of 0 (zero) in the
;          Cursor Position field.
;-
; Note:
; -----
;      String lengths of datafill lines should not exceed 80 characters.
;
;
; CT4Q      CT4Q      Call Orig      Cursor
; Index     Name      display        Position
; -----
; 0  " "    Y          1 ;unspecified
; 1  "AB"   Y          1 ;zero minus
; 2  "CD"   Y          2 ;zero plus
;
```

6.4.9 Table XCT4QMNU

This is the Call Type for Queuing (CT4Q) menu table. It associates a long text string (up to 25 characters) with a CT4Q ID from the XCT4Q table. The text from table XCT4QMNU is used *only* for display in the CT4Q menu window. The shorter (9-character) text from table XCT4Q is displayed for all other call processing purposes, such as in the Call Details window and in the transient field of the MSA. The CT4Qs listed in table XCT4QMNU must be a subset of those datafilled in table XCT4Q, with the exception of the NIL value 2047.

6.4.9.1 XCT4QMNU Field Descriptions

Table 21 shows the range of values for the fields belonging to table XCT4QMNU. The table is followed by a description of each field.

Field name	Range of values
CT4Q ID	0-2047 decimal
CT4Q Long Name	Up to 25 ASCII characters

TABLE 21. XCT4QMNU Fields

CT4Q ID: This field contains an integer value that represents a CT4Q (call type for queuing). This ID must parallel datafill in the XCT4Q table in the base software and the CT4QNAMS table in the DMS switch software.

CT4Q Long Name: This is a text string containing the CT4Q long name. The characters must be enclosed in double quotation marks.

6.4.9.2 Removing CT4Qs from XCT4QMNU.TBL

Since the CT4Q menu does not display actual CT4Q ID numbers, the order of the menu is determined by the order of datafill in XCT4QMNU.TBL. This functionality is similar to that of the Functions menu. In the following datafill example, note the order of CT4Q ID entries in the XCT4QMNU.TBL file:

```

;
; CT4Q      CT4Q Long
; ID        Name                Comments
; -----  -
; 2046     "Spanish Operator"    ; Spanish Customers
; 50       "Hwy 40 Const Ann"    ; Announcement Node
; 4        "French Operator"     ; French Customers
; 21      "Address Announcement" ; Return Address Announcement

```

The corresponding CT4Q menu, which is displayed when the **CT4Q** key is pressed twice, lists these entries in the order they were datafilled. The numbering of the menu list starts at zero, as shown below:

CT4Q	Page 1/1
0	Spanish Operator
1	Hwy 40 Const Ann
2	French Operator
3	Address Announcement

The CT4Q menu has a functionality unlike that of any other IWS menu. If a NIL CT4Q value (2047) is used in the XCT4QMNU.TBL file, the CT4Q name does not display in the CT4Q menu, and the CT4Q number is disabled. This allows a CT4Q number to be retained even when the CT4Q become invalid. For example, if the CT4Qs 50 and 4 (shown in the datafill example above) become invalid and should no longer be used by the operator, the XCT4QMNU.TBL datafill can be changed by either

- deleting the CT4Q entries 50 and 4, or
- using the NIL CT4Q entry (2047) for the old CT4Qs 50 and 4

Deleting an old CT4Q causes the CT4Qs following it to be renumbered in the XCT4QMNU.TBL file. In this case, "Address Announcement" would be displayed as 1 in the CT4Q menu. Shifting the position of entries in this way could cause confusion for the operators.

The confusion can be avoided by using the NIL CT4Q entry (2047) instead of deleting the old CT4Q entries. This approach disables the old CT4Q entries without changing the positions of the remaining CT4Q entries on the CT4Q menu. The following datafill example uses two NIL entries in the XCT4QMNU.TBL file.

```

;
; CT4Q      CT4Q Long
; ID        Name                               Comments
; -----  -
; 2046      "Spanish Operator"                 ; Spanish Customers
; 2047      "Hwy 40 Const Ann"                 ; Announcement Node
; 2047      "French Operator"                 ; French Customers
; 21        "Address Announcement"            ; Return Address Announcement

```

In the resulting CT4Q menu, these two entries are blanked out, but the menu entry numbers remain as placeholders, so that subsequent entries are not renumbered:

CT4Q	Page 1/1
0	Spanish Operator
1	
2	
3	Address Announcement

6.4.9.3 XCT4QMNU Sample Datafill

The sample table below illustrates the format of file XCT4QMNU.TBL. This sample serves only as an example. It does not contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XCT4QMNU.TBL
; -----
;
; Description:
; -----
;     This table associates a long text string (up to 25 characters)
;     to the DMS Call Type for Queueing (CT4Q). The strings are used
;     for display in the CT4Q menu.
;
;     Note: This table should not be confused with XCT4Q.TBL
;     which is used for displaying CT4Q Name (only up to 9 characters)
;     in the Call Details window.
;
;
;
; Display:
; -----
;     The strings are used for display in the CT4Q Menu.
;
;
; Fields:
; -----
;     CT4Q ID           The Call Type for Queueing,
;                       range: 0 - 2047
;
;     CT4Q Long Name    Text string associated with the
;                       CT4Q ID.
;                       The string max length is 25 characters.
;
;
; Comments:
; -----
;     The engineer can determine the order in which the menu
;     items will be displayed simply by re-ordering the lines
;     in this file.
;
;
;     IMPORTANT NOTES:
;     1) When rearranging, both the CT4Q Index and name must
;        be moved together. The CT4Q Index maps to a CT4Q
;        datafilled in the DMS. Separating the CT4Q index
;        and its associated text will result in operator
;        confusion and unpredictable behavior at the position.
;
;

```

```
;      2) CT4Q Index Value 2047 can be used as a NIL value and a
;      place holder for obsolete CT4Qs. Using the CT4Q NIL value
;      displays the CT4Q on the menu with no text string indicating
;      that the CT4Q is no longer valid.
;
;      3) Datafill in this table must be a subset of CT4Q Indexes
;      datailled in table XCT4Q.TBL. MPXBASE will fail to run if a
;      CT4Q index in this table is not found in the XCT4Q.TBL file.
;
; Note:
; -----
;      String lengths of datafill lines should not exceed 80 characters.
;
;
; CT4Q   CT4Q Long
; Index  Name           Comments
; -----
; 300    "Spanish Operator" ; Will show in Menu as "1 Spanish
;Operator"
; 2047   "Hwy 40 under cons Ann" ; Will show in Menu as "2"
; 20     "Accident on Hwy 20 Ann" ; Will show in Menu as "3 Accident
;on Hwy 20 Ann"
; 1000   "French Operator"       ; Will show in Menu as "4 French
;Operator"
;-
;
```

6.4.10 Table XCT4QXSC

This table provides a cross reference between the Call Types for Queuing datafilled in XCT4Q.TBL and the Script IDs datafilled in SCRPTSCR.SCR. This table file is used in standard scripting mode. This file is ignored if enhanced scripting is used.

6.4.10.1 XCT4QXSC Field Descriptions

Table 22 shows the range of values for the fields belonging to IWS table XCT4QXSC. The table is followed by a description of each field.

Field name	Range of values
CT4Q ID	0-2046 decimal
Script ID	1-300 decimal

TABLE 22. XCT4QXSC Fields

CT4Q ID: This value specifies the call type for queuing. These values have the same meaning as the call type for queuing values datafilled in the XCT4Q IWS datafill table.

Script ID: This value specifies the Script ID of the script message associated with the CT4Q. These values have the same meaning as the Script ID values datafilled in the SCRPTSCR.SCR IWS datafill table.

6.4.10.2 XCT4QXSC Sample Datafill

The sample table below illustrates the format of file XCT4QXSC.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XCT4QXSC.TBL
; -----
;
; Description:
; -----
;      CT4Q to Script ID Table
;
;      This table associates a Script ID (title/message) to the DMS
;      Call Type for Queueing (CT4Q).
;
;      When using Scripting, this table is only required for QMS
;      positions.
;
;

```

```
; Display:
; -----
;   Applications may display a script title/message
;   as an indicator to the attendant indicating the Call Type
;   for Queueing for the current call. Brief call handling
;   instructions may also be included.
;
;
; Fields:
; -----
;   CT4Q ID      The call Type for Queueing, range: 0 - 2046.
;
;   Script ID
;               ID of script message(s) associated with the CT4Q ID.
;               The valid range for script IDs is 1 to 300.
; Comments:
; -----
;   The CT4Q indexes in this table are the same indexes found
;   in DMS table CT4QNAMS.
;-
; Notes:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;
;
;   CT4Q      Script
;   Index     ID
;   -----   -----
;
;               ; In the following example, if Script 2
;               ; exists, it will be displayed for CT4Q
;   0         2   ; Index 0.
;
```

6.4.11 Table XCTRYDIR

This is the Country Direct table. It lists the country names used for the Country Direct service. The table corresponds to DMS table CDCTRY. Table CDCTRY is associated with the country from which the end user is calling when using Country Direct.

6.4.11.1 XCTRYDIR Field Descriptions

Table 23 shows the range of values for the fields belonging to table XCTRYDIR. The table is followed by a description of each field.

Field name	Range of values
Name Index	0-999
Name Text	string of 8 characters or less

TABLE 23. XCTRYDIR Fields

6.4.11.2 XCTRYDIR Sample Datafill

The sample table below illustrates the format of file XCTRYDIR.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
;-----
; Table: XCTRYDIR.TBL
;-----
;
; Description:
; -----
;     This table contains the country names for Country Direct.
;     The Name Indexes are defined in DMS table CDCTRYNM
;
; Display:
; -----
;
; Fields:
; -----
;     Name Index - Index into the table sent from the DMS.
;                 Range: 0 to 999
;
;     Name Text  - Text to be displayed to screen
;                 Maximum number of characters is 8 characters.
;-
; Note:
; ----
;     String lengths of datafill lines should not exceed 80
;     characters
;
; Name Index      Name Text
;-----
;
;     0           "USA"
;     1           "Canada"
;     2           "Mexico"
;     3           "France"
;     4           "England"

```

6.4.12 Table XDARBLG

This is the DA Restricted Billing table. It equates an integer from 0 to 99 with a text string indicating restricted billing for the calling party of a DA call. This text string may be used for display to indicate any related restricted billing for the DA service.

6.4.12.1 XDARBLG Field Descriptions

Table 45 shows the range of values for the fields belonging to table XDARBLG. The table is followed by a description of each field.

Field name	Range of values
Switch ID	0-31 decimal
Res Num	0-99 decimal
Display Label	Up to 8 ASCII characters

TABLE 24. XDARBLG Fields

Res Num: This value identifies the billing restrictions associated with the calling party for the DA service.

Display Label: This is a normal ASCII text string. The characters must be enclosed in double quotes. The text string that appears in this field must match the display field of the DMS table DARSTBIL.

6.4.12.2 XDARBLG Sample Datafill

The sample table below illustrates the format of file XDARBLG.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XDARBLG.TBL
; -----
;
; Description:
; -----
;   DA Restricted Billing table
;
;   This datafill table associates a text string with the
;   DMS Restriction Number.
;
; Display:
; -----
;   DA applications may display this text as an indication
;   to the operator of the billing restrictions associated
;   with the current call.
;
; Fields:
; -----
;   DRes Num           Identifies the billing restrictions
;                       associated with the DA calling party.

```

```

;           Range 0 - 99.
;
;   Display Label   The text string associated with the
;                   billing restrictions.
;                   The maximum string length is 8 characters.
;
;   Switch ID       The originating switch ID, range 0-31;
;
; Comments:
; -----
;   The switch ID in this table must correspond to those
;   datafilled in DMS table OCOFC.
;
; Note:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;-
;
;
;           Switch ID       Restriction       Display
;           -----       -
;           0               0               "DARPD"
;           0               1               "DARCOL"
;           0               4               "DAR3RD"

```

6.4.13 Table XDBCLASS

For the internal booked call database feature, this table maps the class index number to the datafillable screen display for that class.

6.4.13.1 XDBCLASS Field Descriptions

Table 25 shows the range of values for the fields belonging to IWS table XDBCLASS. The table is followed by a description of each field.

Field name	Range of values
Class index	0-99
Class text	up to 10 characters

TABLE 25. XDBCLASS fields

Class index: This value is the index into table IDBCLASS, sent from the DMS.

Class text: This value specifies the text to be displayed to the screen.

6.4.13.2 XDBCLASS Sample Datafill

The sample table below illustrates the format of file XDBCLASS.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XDBCLASS.TBL
; -----
;
; Description:
; -----
;     This table contains the string names corresponding to the
;     Class number for the internal Booked Call Database.
;     The Class number corresponds to that datafilled in DMS table
;     IDBCLASS.
; Display:
; -----
;
; Fields:
; -----
;     Class Index - Index into the table sent from the DMS.
;                   Range: 0 to 99
;     Class Text  - Text to be displayed to screen
;                   Maximum number of characters is 10 characters.
;-
;Notes:
; -----
;     String lengths of datafill lines should not exceed 80
;     characters
;
; Class Index      Class Text
; -----
;     10           "TIME_CLG"
;     20           "TIME_CLD"
;     30           "RTE_Q_CLG"
;     40           "RTE_Q_CLD"
;

```

6.4.14 Table XFNCTS

This is the Functions menu table. It provides user-supplied text for the IWS Functions menu. It also allows control of the order in which the functions are listed in the menu. The order in which the functions are placed in this table determines the order in which they appear in the Functions menu. This table is applicable in both QMS.

Only those entries provided in the table are displayed in the IWS Functions menu and provided to the operator. If 0 lines of datafill are provided in table XFNCTS, the Functions menu is blank when it is displayed. If only six lines of datafill are provided in table XFNCTS, the Functions menu only provides six functions to the operator.

Any function that is defined to be used as a softkey or a hot key should be datafilled in the position in the Functions menu.

International functions that are contained in the default datafill table are initially commented out so that the user may add them as needed.

6.4.14.1 XFNCTS Field Descriptions

Table 26 shows the range of values for the fields belonging to table XFNCTS. The table is followed by a description of each field.

Field name	Range of values
Field ID	0-78 decimal
Function Text	Up to 25 ASCII characters

TABLE 26. XFNCTS Fields

Function ID: This value uniquely identifies an IWS function. Currently, base HMI provides 79 functions. Each of these functions are enumerated with a unique ID.

Function Text: This is a normal ASCII text string that identifies a function to the operator. The text must be enclosed by double quotes. The text string is displayed in the functions menu next to a number. The number associated with any given function depends on that function's position in the Functions menu Window. To invoke the function, the operator enters the number associated with the function into the menu entry field.

6.4.14.2 XFNCTS Sample Datafill

The sample table below illustrates the format of file XFNCTS.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;+
; -----
; Table: XFNCTS.TBL
; -----
;
; Description:
; -----
;     Function menu table
;
;     This table controls the display and ordering of
;     functions in the functions menu.  See the Notes section
;     for important information regarding the use of this file.
;
;
; Display:
; -----
;     In the functions menu.
;
; Fields:
; -----
;     Function ID      The INTERNAL function ID mapping,
;                      ranging from 0 - 79.
;                      **This is not the displayed index**
;
;     Function Name    The name of the function displayed
;                      in the menu.
;                      The max string length is 25 characters.
;
;
; Comments:
; -----
;     The engineer can determine the order in which the menu
;     items will be displayed simply by re-ordering the lines
;     in this file.
;
;
;     IMPORTANT NOTE:
;     When rearranging, both the number and name must
;     be moved together.  The Function ID maps to an
;     internal function number and MUST remain with
;     the associated name.  Separating the function
;     number and its associated text will result in
;     operator confusion and unpredictable behavior at
;     the position.
;-
; Note:
; -----
;     String lengths of datafill lines should not exceed 80
;     characters.
;
;

```

```

; Function
; ID      Function Name
; -----
  0      "Call Details"
  1      "Access Loop 1"
  2      "Access Loop 2"
  3      "Ring Calling"
  4      "Ring Called"
  5      "Release Calling"
  6      "Dial Rate"
  7      "Coin Return"
  8      "Coin Collect"
  9      "Over Collect"
 10      "Busy Verify"
 11      "Notify"
 12      "Request CAMA"
 13      "Charge Adjust"
 14      "Ratestep"
 15      "Coin"
 16      "Hotel"
 17      "Transfer IC"
 18      "Time and Charges"
 19      "International"
 20      "Person Call Back"
 21      "Name"
 22      "Auto Collect"
 23      "No AMA"
 24      "Split/Join Clg"
 25      "Tone Repeat"
 26      "Start Stopwatch"
 27      "Clear Stopwatch"
 28      "Start Timing"
 29      "Cancel Timing"
 30      "Hold"
 31      "Make Busy"
 32      "Withhold Calls"
 33      "Verify Special"
 34      "Time"
 35      "Handoff to AABS"
 36      "Requested Number"
 37      "SN Routing"
 38      "Transfer/Recall"
 39      "Caller ID Blocking"
 40      "Split/Join Cld"
 41      "Gen AMA"
 42      "Print Time and Charges"
 43      "Barge In"
 44      "Special Called"
 45      "DTMF"
; 46      "Fixed Duration"
; 47      "International DA"
; 48      "International Inward"
 49      "Quit Monitoring"
 50      "Stop Bell"
; 51      "Calling Party Name"
; 52      "Called Party Name"
; 53      "Generate Ticket Number"
; 54      "Update Ticket Number"
; 55      "Split/Join Operator"
; 56      "Muted Notify"
; 57      "Alternate Route"
; 58      "Start Calling TBI"
; 59      "Stop Calling TBI"
; 60      "Start Called TBI"

```

```

; 61      "Stop Called TBI"
63      "General Assistance"
64      "Dir. Asst. by Position"
65      "Paged Assistance"
66      "Release Operator"
67      "Release Called"
68      "Page Operator"
69      "Page Position"
70      "Monitor Operator"
71      "Monitor Position"
72      "Monitor Display Toggle"
73      "Dir. Asst. by Operator"
74      "LNP Info Calling"
75      "LNP Info Called"
76      "LNP Info Special"
77      "Calculate Est Chg"
78      "Allow Automation"
79      "Clear Trigger Profile"
; 80      "No Release Link Trunking"

```

6.4.15 Table XKBOARD

Table XKBOARD is used to customize the functionality of the IWS keyboard. Through XKBOARD.TBL, IWS-specific keys are assigned to provide input and to invoke selections from the various windows and menus. These include the Functions, Services, OGT menu, Applications, and the Trouble menus.

IWS positions are based on PC technology. These positions are normally used with a special IWS keyboard supplied by Nortel Networks. Table XKBOARD can also be datafilled for use with a standard 101-key DOS keyboard or a 122-key, host-connected, compatible DOS keyboard, supplied by the user. Datafill for table XKBOARD is contained in directory MPXMPLS under C:\MPXBASE as follows:

XKBHNYWL.TBL: IWS default datafill for a Nortel Networks (Cherry or Honeywell) keyboard

XKB101.TBL: option for a 101-key DOS keyboard

XKB122.TBL: option for a 122-key DOS keyboard

IWS software puts the contents of table XKBHNYWEL in table XKBOARD as the default datafill. The datafill in table XKBOARD may need to be changed to accommodate a different user-provided keyboard. For example, to change the datafill in table XKBOARD for use with a user-provided 122-key keyboard, DOS commands at the C:\ prompt can be used as follows (the entered command string is shown in bold, and the C:\ prompt and DOS response messages are shown unbolded):

```

C:\copy c:\mpxbase\mpxmpls\xkb122.tbl c:\mpxbase\datafill\xkboard.tbl
Overwrite c:\mpxbase\datafill\xkboard.tbl (Yes/No/All) ?Y
1 file(s) copied

```


For a 101-key DOS keyboard, the Key Scan Codes would be mapped as in Figure 117.

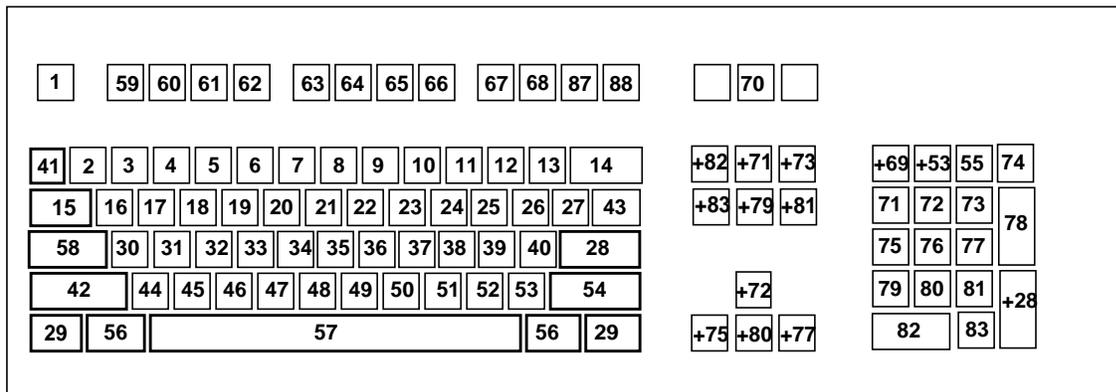


FIGURE 117. 101-key DOS keyboard Key Scan Codes

Note: Some newer off-the-shelf keyboards may have additional keys not covered here.

During initialization, the IWS software uses these key scan codes and the associated information in the XKBOARD table to define IWS specific keys. A detailed explanation of how to datafill table XKBOARD is provided below.

For example, the **Ca Call** key is a key that is located near the numeric key pad on the IWS keyboard. It is identified in Figure 116 by the value x80. This is the physical key on the keyboard. The cancel call functionality, however, refers to the action that is normally associated with the **Ca Call** key. The cancel call functionality performs the action of cancelling a call.

Any key may be datafilled to perform any IWS key set assignment listed in Figure 28, “IWS Generic Key Actions.” For example, the **Ca Call** key can be datafilled to invoke function 23 from the Functions menu, and another key or key sequence would be required to perform the cancel call *action*.

As of IWS 13.0, the following three key actions have been added to the IWS generic key set.:

- Key action 43, Return: performs the normal Windows “return” key functionality.
- Key action 44, Do Nothing: causes the key to which it is mapped to do nothing.
- Key action 163, No IWS function: performs the normal physical key functionality that is applicable, and does not perform any IWS functionality. Key action 163, No IWS function, performs the normal physical key functionality that is applicable, and does not perform any IWS functionality. For example, if you place this key action on the “h” key, you will see just an “h” character if you press that key when the cursor is in an edit field.

Key action 163, No IWS function, performs the normal physical key functionality that is applicable, and does not perform any IWS functionality. For example, if you place this key

action on the “h” key, you will see just an “h” character if you press that key when the cursor is in an edit field.

Table XKBOARD allows a specific key to be datafilled with different key actions for different applications. To customize the keyboard on a per-application basis, table XKBOARD can be divided into multiple sections, a default section and application-specific sections. The beginning of each specific section must begin with the section name in brackets, such as [DEFAULT] and [NTDA]. If table XKBOARD has no such delimiters (for example, if an earlier version of the XKBOARD table is used) the entire file is assumed to be default key mappings. Application-specific sections are needed only if key datafill is different for a particular application. Likewise, only those keys that have different actions from those in the default section need to be datafilled in an application-specific section.

Table XKBOARD also allows keys to be datafilled with key actions that have meaning only to a specific application. These key actions are also datafilled in application-specific sections. Refer to documentation for each application to determine whether there are application-specific keys that need to be datafilled. These keys are datafilled using the Application-Specific Key Set as described below.

During IWS key processing, if an application-specific section exists for the active application and the key is datafilled in that section, the key action from that application-specific section is performed. Otherwise, the key action from the default section is performed.

6.4.15.1 Key Sets

The default IWS keyboard file consists of the ten key sets listed in the following table.

Key Set	Description
0	Key sequence not defined/changed (a zero causes the datafill to be ignored for that key)
1	IWS generic key set
2	Functions menu hot key sequence
3	Services menu hot key sequence
4	OGT menu hot key sequence
5	Trouble menu hot key sequence
6	Applications menu hot key sequence
7	Application-specific key set (not valid in Default section of XKBOARD file)
8	IWS key macros
9	CT4Q menu hot key sequence

TABLE 27. IWS Key Sets

6.4.15.1.1 IWS Generic Key Set

IWS defines Key Set 1 as the generic keys.

Key Action	Functional Description
0	Keypad 0
1	Keypad 1
2	Keypad 2
3	Keypad 3
4	Keypad 4
5	Keypad 5
6	Keypad 6
7	Keypad 7
8	Keypad 8
9	Keypad 9
10	Destructive Backspace
11	Keypad #
12	Start key
13	Misc field key
14	InterLATA Carrier field key
15	Special field key
16	Called field key
17	Calling field key
18	Person billing key
19	Station billing key
20	Release called key
21	Cancel call key
22	Applications menu key
23	Services menu key
24	Functions menu key
25	Trouble menu key
26	OGT menu key
27	Position Release key
28	Page backward key
29	Page forward key
30	Half page backward key
31	Half page forward key
32	Entry Reset key
33	Increase headset volume key
34	Decrease headset volume key

TABLE 28. IWS Generic Key Actions

Key Action	Functional Description
35	Field selection key
36	Next field selection key
37	Clear field key
38	Clear all fields key
39	Mute on key (available for all IP positions, but only for TDM positions with the NTN51BE digital audio card)
40	Mute off key (available for all IP positions, but only for TDM positions with the NTN51BE digital audio card)
41	Context Change key
42	Print Screen key
43	Return
44	Do Nothing
45	CT4Q menu key
46	Message Editor key
47	Message Editor SMS key
48	Message Editor Email key
49	Message Editor DA Printer key
50	Selected Text to Clipboard key
51	Unused key action 51
52	Requested Number
53	Unused key action 53
54	Unused key action 54
55	Unused key action 55
56	Unused key action 56
57	Unused key action 57
58	Unused key action 58
59	Unused key action 59
60	Unused key action 60
61	Unused key action 61
62	Emergency
63	NPA
64	NPA Step
65	Alternate Book
66	New Request
67	Interactive Voice Response
68	Alternate Code
69	Alternate Spelling
70	Generate AMA

TABLE 28. IWS Generic Key Actions

Key Action	Functional Description
71	Frequently Referenced Locality
72	Word Left
73	Word Right
74	DAS POS Release
75	OPP POS Release
76	Softkey number zero
77	Softkey number one
78	Softkey number two
79	Softkey number three
80	Softkey number four
81	Softkey number five
82	Softkey number six
83	Softkey number seven
84	Softkey number eight
85	Softkey number nine
86	Softkey number ten
87	Softkey number eleven
88	Softkey number twelve
89	Softkey number thirteen
90	Softkey number fourteen
91	Softkey number fifteen
92	Softkey number sixteen
93	Unused key action 93
94	Unused key action 94
95	Unused key action 95
96	Unused key action 96
97	Unused key action 97
98	Unused key action 98
99	Unused key action 99
100	Unused key action 100
101	Unused key action 101
102	Unused key action 102
103	Unused key action 103
104	Unused key action 104
105	Unused key action 105
106	Unused key action 106
107	Unused key action 107
108	Unused key action 108

TABLE 28. IWS Generic Key Actions

Key Action	Functional Description
109	Unused key action 109
110	Unused key action 110
111	Unused key action 111
112	Hardkey Number 1
113	Hardkey Number 2
114	Hardkey Number 3
115	Hardkey Number 4
116	Hardkey Number 5
117	Hardkey Number 6
118	Hardkey Number 7
119	Hardkey Number 8
120	Hardkey Number 9
121	Hardkey Number 10
122	Hardkey Number 11
123	Hardkey Number 12
124	Hardkey Number 13
125	Hardkey Number 14
126	Hardkey Number 15
127	Hardkey Number 16
128	Hardkey Number 17
129	Hardkey Number 18
130	Hardkey Number 19
131	Hardkey Number 20
132	Hardkey Number 21
133	Hardkey Number 22
134	Hardkey Number 23
135	Hardkey Number 24
136	Hardkey Number 25
137	Hardkey Number 26
138	Hardkey Number 27
139	Hardkey Number 28
140	Hardkey Number 29
141	Hardkey Number 30
142	Hardkey Number 31
143	Hardkey Number 32
144	Memo
145	Right arrow
146	Left arrow

TABLE 28. IWS Generic Key Actions

Key Action	Functional Description
147	Delete
148	Home
149	Up arrow
150	Down arrow
151	Database Access
152	Account Field
153	Special to Third
154	Restriction Override
155	Connect
156	Generate Custom AMA
157	Script Window Display
158	Edit Field
159	Clear Memo
160	Estimate Call Chg
161	Internal Booked Call DB
162	Screen Capture
163	No IWS Function

TABLE 28. IWS Generic Key Actions

6.4.15.1.2 Functions Menu Hot Keys

IWS defines Key Set 2 as the Functions menu hot key set. These hot keys directly invoke the specified function (from the Functions menu) with a single keystroke. The function index used to define the IWS function are shown in the example XKBOARD.TBL file of section 6.4.15.5. Several functions menu hot keys may be defined.

Any function that is defined to be used as a hot key should be datafilled in the position in the Functions menu.

Key Action	Functional Description
function index	Function to be invoked

TABLE 29. Functions Menu Hot Key Actions

6.4.15.1.3 Services Menu Hot Keys

IWS defines Key Set 3 as the Services menu hot key set. These hot keys directly invoke the specified service (from the Services menu) with a single keystroke. Several services menu hot keys may be defined.

Any service that is defined to be used as a hot key should be datafilled in the position in the Services menu.

Key Action	Functional Description
service index	Service to be invoked

TABLE 30. Services Menu Hot Key Actions

6.4.15.1.4 OGT Menu Hot Keys

IWS defines Key Set 4 as the OGT menu hot key set. These hot keys directly select the specified out going trunk (from the OGT menu) with a single keystroke. Several OGT menu hot keys may be defined.

Any OGT event that is defined to be used as a hot key should be datafilled in the position in the Outtrunks menu.

Key Action	Functional Description
OGT index	OGT to be selected

TABLE 31. OGT Menu Hot Key Actions

6.4.15.1.5 Trouble Menu Hot Keys

IWS defines Key Set 5 as the Trouble menu hot key Set. These hot keys directly select the specified trouble code (from the Trouble menu) with a single keystroke. Several Trouble menu hot keys may be defined.

Any trouble code that is defined to be used as a hot key should be datafilled in the position in the Trouble menu.

Key Action	Functional Description
Trouble Code	Trouble code to be selected

TABLE 32. Trouble Menu Hot Key Actions

6.4.15.1.6 Applications Menu Hot Keys

IWS defines Key Set 6 as the Applications menu hot key Set. These hot keys directly select the specified application (from the Applications menu) with a single keystroke. Several Applications menu hot keys may be defined.

Any application index that is defined to be used as a hot key should be datafilled in the position in the Applications menu.

Key Action	Functional Description
Application Index	Application to be invoked

TABLE 33. Applications Menu Hot Key Actions

6.4.15.1.7 Application-Specific Keys

IWS defines Key Set 7 as the Application-Specific Key Set. Application-specific key actions may be datafilled only in an application section of the XKBOARD table. Since an action in this set has meaning only to the application to which the section belongs, consult application documentation to determine what key actions are available in the Application-Specific Key Set for each application.

Any value 0 to 255 may be datafilled as an application-specific action.

Key Action	Functional Description
0 to 255	(Refer to Application documentation for meanings.)

TABLE 34. Application-Specific Key Actions

6.4.15.1.8 CT4Q Menu Hot Keys

IWS defines Key Set 9 as the CT4Q menu hot key Set. These hot keys directly select the specified call type for queueing (CT4Q) from the CT4Q menu with a single keystroke. Several CT4Q menu hot keys may be defined.

Any CT4Q menu entry that is defined to be used as a hot key should be datafilled in the position in the XCT4QMNU table.

Key Action	Functional Description
CT4Q ID	CT4Q to be invoked

TABLE 35. CT4Q Menu Hot Key Actions

6.4.15.1.9 Use of Hot Keys

Rapid sequential keying of some hot keys or hot keys and generic keys (such as the Position Release key) may cause the display of a No Action Reason and/or other undesired results. This is due to the fact that some DMS TOPS functionality requires a call to be present or ended at the operator position before the functionality can be requested by the operator. Presence of a call at the position is usually indicated by the call data being displayed on the position screen by the designated service-providing IWS application.

Likewise, the end of a call at the position is usually indicated by the call data being cleared from the position screen by the designated service-providing IWS application.

For example, keying Position Release followed quickly by an Access Loop 1 hot key (before the removal of the call data from the position's screen) may result in a No Action Reason being displayed, in addition to loop 1 not being accessed. The operator must press the Access Loop 1 hot key again.

For more information on the No Action Reason displays, refer to the *TOPS IWS Base HMI Application Guide*.

6.4.15.2 Key Sequence Modifiers

The integers shown above in Figure 116, "IWS Keyboard Key Scan Codes," on page 235, identify the basic IWS keys. That is to say, they are not modified in any way by the **Shift**, **Control**, or **Alt** keys. The **Shift**, **Control** and **Alt** keys are called modifiers because they modify the meaning of the basic key. To use these keys, the modifier is pressed and held down while the basic key is pressed. By specifying the basic/extended key scan code and the three modifiers, it is possible to assign as many as 16 actions to a single key.

The Extended modifier indicates that the key is an extended key. This is a physical attribute specific to each keyboard. Please refer to your keyboard documentation for details. The extended keys in Figure 116, "IWS Keyboard Key Scan Codes," on page 235, are prefixed with an "x." Note that the extended qualifier is specified by the keyboard vendor.

The Control qualifier indicates that the Control key was held down simultaneously while another key was depressed. For example, holding down the Control key and depressing the "A" key. For clarity the **Control+A** notation is used to represent a simultaneous key sequence.

The Shift qualifier indicates that the Shift key was held down simultaneously while another key was depressed. For example, holding down the Shift key and depressing the "A" key. For clarity the **Shift+A** notation is used to represent a simultaneous key sequence.

The Alt qualifier indicates that the Alt key was held down while another key was pressed, for example, holding down the Alt key and pressing the "A" key. For clarity, this key sequence is represented by **Alt+A**.

Modifier Mask	Alt	Extended	Ctrl	Shift
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0

TABLE 36. Key Modifiers

Modifier Mask	Alt	Extended	Ctrl	Shift
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

TABLE 36. Key Modifiers

It is possible to specify a key sequence that is a combination of the four qualifiers. For example, the **Ctrl+Shift+R** key sequence could be defined to provide Release Called functionality. The Cancel Call functionality could be defined so that it is invoked by pressing the **Ctrl+C** key combination (while holding the **Ctrl** key down, press the **C** key). Another example configuration may invoke the Cancel Call functionality when the **Ctrl+Shift+C** key combination is pressed.

6.4.15.3 Keyboard Configuration Considerations

Care must be taken when deciding which keys to reassign. Many issues must be considered. This section discusses some of these issues, but the discussion is not exhaustive. Before reassigning any key function, the consequences must be thoroughly investigated. For any further possible restrictions on datafilling keyboard functionality due to other IWS applications, refer to the Appendix section of this document or the application documentation.

Nortel Networks IWS training and documentation is based on the default datafill. The value of a particular key reassignment must be weighed against the impact it will have on training effectiveness and operator use.

1. Only the above documented IWS specific key actions and IWS application-specific key actions may be defined. Whenever a scan code/qualifier sequence is used for an IWS specific action, the original action by that scan code/qualifier is lost. This is important to remember when considering the Alphanumeric keys in the QWERTY group that are normally used for entering text into the system. If any of these keys are reassigned, they are lost for data entry. For example, if the **Q** key is reassigned, the operator is no longer able to enter the character “**Q**” into any data entry field. Modifiers (**Shift** and **Control**) may be

used to retain the original key function but still allow the key to be used for IWS actions. For example, **Ctrl+Q** may be assigned without losing the 'Q' key for data entry. Note that this restriction is also an issue with the space bar and any special character keys. If any of these keys are reassigned, their original functionality is lost. It is recommended that any keys that are required for data entry not be reassigned; however, any keys that are not allowed for entry in IWS fields and, therefore, not needed can be reassigned to IWS specific key actions.

2. The Numeric keys on the numeric keypad are normally configured to the telephone keypad to facilitate operator directory number entry.
3. The keycaps for the IWS Honeywell keyboard are designed to unique specifications per row. Due to this keyboard design, it is not recommended that a keycap designed for one row be moved to another row. Note: This restriction may or may not exist for other keyboards.
4. When a key is assigned to provide Context Change, the last keystroke is passed on to the IWS base software and control of the keyboard is released. The IWS base software expects another service to be waiting for the keystroke. That service is also expected to take control of the keyboard and understand the keystrokes it receives.
5. Cursor movement keys are provided in the IWS Generic Key Set so that these key actions may be relocated from their default key positions to other keys on the keyboard. These keys include **Right Arrow**, **Left Arrow**, **Up Arrow**, **Down Arrow**, **Delete**, and **Home**. Standard Windows functionality for these keys provides different functionality when these keys are pressed simultaneously with the **Alt**, **Control**, and **Shift** modifier keys. For example, pressing **Shift+Left Arrow** selects the text character to the left of the cursor and **Ctrl+Left Arrow** moves the cursor to the beginning of the current word. Functionality of the cursor movement keys is described in Windows user documentation. To preserve this functionality, these keys should not be datafilled on a modifier key (e.g. **Alt**, **Control**, and **Shift**) and should not be datafilled on a key combined with a modifier (e.g. **Ctrl+<any key>**). If this is done, the datafill for the cursor movement key is ignored. This restriction is necessary because datafill of a cursor movement key involving a modifier key would cause that key to function as if the key was always pressed with the modifier key. For example, if **Ctrl+<any key>** is datafilled to be the **Left Arrow**, pressing the datafilled key combination would always act as pressing **Ctrl+Left Arrow** and would, therefore, result in moving the cursor to the beginning of the current word instead of moving the cursor one character to the left. Note, however, that when a cursor movement key is datafilled on an unmodified key, that pressing that key in conjunction with a modifier will then cause the standard Windows documented functionality. For example, if **<any key>** is datafilled to be the **Left Arrow**, then pressing this key would cause the cursor to move one character to the left and pressing **Ctrl+<the datafilled key>** would cause the cursor to move to the beginning of the current word.

6. The keys in the following table should not be defined to provide IWS keyboard functionality if they are used as key modifiers. If any of these keys is defined as an IWS specific key action, then the key cannot be used as a modifier key. For example, if the **Alt** key is datafilled as an IWS specific key action and other IWS actions are datafilled on key combinations using the **Alt** key as a modifier, then pressing any of the IWS **Alt** key combinations will perform the action datafilled on the **Alt** key and not the action datafilled for the key combination. Therefore, the **Alt**, **Ctrl**, and **Shift** keys should not be datafilled if they are to be used as modifiers. If any of these keys are never used as modifiers, however, then the key can be reassigned to IWS specific key actions. Note also that the **Tab** key (scan code 15) cannot be defined when assigning keys with the KeyBind utility. The **Tab** key is used within KeyBind as the method for maneuvering through the KeyBind windows. However, the **Tab** key can be defined to provide IWS keyboard functionality by manually adding the key assignment to XKBOARD.TBL. Note that the combinations **Shift+F10** and **Alt+F6** cannot be used by any IWS application.

Key	Scan Code (decimal)	Description
Alt (left)	56	Alternate
Alt (right)	56	Alternate
Control (left)	29	Control
Control (right)	29	Control
Shift (left)	42	Shift
Shift (right)	54	Shift

TABLE 37. Non-definable Keys

6.4.15.4 XKBOARD Field Descriptions

Selection of a particular key, a particular modifier, a particular key set, and the particular key action is made by placing the proper value in the appropriate field of table XKBOARD. Each of these fields are described in detail below.

Table 38 shows the range of values for the fields belonging to table XKBOARD. The table is followed by a description of each field.

Field Name	Range of Values
Key Scan Code	0-255 decimal
Key Modifier	0-15 decimal
Key Set	0-9 decimal
Key Action	See Field Description

TABLE 38. XKBOARD Fields

Scan Key Code:

This field is used to select a particular key. The correct value for this field is determined from Figure 116, “IWS Keyboard Key Scan Codes,” on page 235.

Key Modifier:

This field identifies the particular modifier that should be applied to the key. The valid modifiers are described above in “Key Sequence Modifiers” on page 245.

Key Set:

This field is used to identify the Key Set that contains the desired action. The available Key Sets are described above in “Key Sets” on page 237.

Note: Do not datafill the Action Set field with a value of 0 (zero). The value 0 causes the action set to be ignored.

Key Action:

This field is used to identify a particular action within the Key Set field. Valid ranges are specific to each Key Set.

6.4.15.5 XKBOARD Sample Datafill

The sample table below illustrates the format of file XKBOARD.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XKBOARD.TBL
; -----
;
; Description:
; -----
;      IWS Honeywell Keyboard table
;
;      This table will define keys on the IWS keyboard
;      to perform specific functions. This version of the
;      table is for the Honeywell IWS keyboard.
;
;
;
; Fields:
; -----
;      Scan Code   Value representing the pressed key (0-255).
;
;      Modifier    Value representing key modifiers (0-15)
;
;      Mask        (alt, extended key, Shift, Ctrl)
;
;      Action Set  Defines the action type from which to draw the key
;                  action.
;
;      Action      Defines the action to be taken based on the Action
;                  Set.
;
;
; Notes:

```

```

; -----
; The following extended notes apply to the different fields:
;
; Modifier - an integer that represents the modifier to be used on
; the key
;
;
; Modifier
; Mask      alt      xtnd      ctrl      shft
; =====
;          0          0          0          0          0
;          1          0          0          0          1
;          2          0          0          1          0
;          3          0          0          1          1
;          4          0          1          0          0
;          5          0          1          0          1
;          6          0          1          1          0
;          7          0          1          1          1
;          8          1          0          0          0
;          9          1          0          0          1
;         10          1          0          1          0
;         11          1          0          1          1
;         12          1          1          0          0
;         13          1          1          0          1
;         14          1          1          1          0
;         15          1          1          1          1
;
;          0 - the modifier key was NOT pressed
;          1 - the modifier key WAS pressed
;
;
; Action Set - value that identifies the action set from which
; the key action should be drawn.
;
;          0 - no translation
;          1 - IWS Generic key set
;          2 - Functions menu actions
;          3 - Services menu actions
;          4 - OGT menu actions
;          5 - Trouble menu actions
;          6 - Applications menu actions
;          7 - Application Specific actions
;             (may not be used in Default section)
;          8 - IWS Key Macros
;          9 - CT4Q menu actions
;
;
; NOTE: A zero will cause the datafill to be ignored for that key.
;
;
; Action - value that identifies the particular action to be invoked
; from the action set identified in the field above.
;
;
; Note:
; -----
; String lengths of datafill lines should not exceed 80 characters.
;
; [Default]
; =====
; Context Change Keys
; -----
; Scan   Modifier  Action
; Code   MASK      Set    Action  Description
; =====

```

```

;   43       1       1       41   ;<Shift>+Reset ==> Context Chg
;
;
;=====
;                               Call Processing Keys
;-----
; Scan      Modifier  Action
; Code      MASK      Set      Action   Description
;-----
;   98       0         1        12      ; Start key
;   69       4         1        13      ; Misc key
;   57       4         1        14      ; IC key
;  107       0         1        15      ; Spl key
;  105       0         1        16      ; Cld key
;   83       4         1        17      ; Clg key
;   79       4         1        18      ; Per key
;   81       4         1        19      ; Sta key
;   75       4         1        20      ; Rls Cld key
;   80       4         1        21      ; Ca Call key
;   77       4         1        22      ; Appl key
;  106       0         1        23      ; Svcs key
;   15       4         1        24      ; Fncts key
;   74       0         1        25      ; Trbl key
;   86       0         1        26      ; OGT key
;   53       4         1        27      ; Pos Rls key
;   95       0         1        28      ; Page Backward key
;   89       0         1        29      ; Page Forward key
;   95       1         1        33      ; Volume Up key
;   89       1         1        34      ; Volume Down key
;
;
;=====
;                               OIA Keys
;-----
; Scan      Modifier
; Code      MASK      Action Set   Action   Description
;-----
;   43       0         1          32      ; OIA Reset key
;   28       4         1          35      ; OIA Field key
;
;
;=====
;                               Telephone Keypad Definitions
;-----
; Scan      Modifier
; Code      MASK      Action Set   Action   Description
;-----
;   82       0         1           0      ; "0"
;   79       0         1           1      ; "1"
;   80       0         1           2      ; "2"
;   81       0         1           3      ; "3"
;   75       0         1           4      ; "4"
;   76       0         1           5      ; "5"
;   77       0         1           6      ; "6"
;   71       0         1           7      ; "7"
;   72       0         1           8      ; "8"
;   73       0         1           9      ; "9"
;   55       0         1          10      ; Asterisk
;   78       0         1          11      ; Pound
;
;
;=====
;                               Editing Definitions
;-----
; Scan      Modifier

```

```

; Code          MASK      Action Set   Action      Description
;=====
;   117         0         1         148        ; Home
;   85          0         1         147        ; Delete
;   90          0         1         146        ; Left Arrow
;   94          0         1         145        ; Right Arrow
;
;=====
;                               Softkeys
;-----
; Scan          Modifier
; Code          MASK      Action Set   Action      Description
;=====
;   92          0         1         76         ; Softkey 0
;   93          0         1         77         ; Softkey 1
;   99          0         1         78         ; Softkey 2
;  100          0         1         79         ; Softkey 3
;  101          0         1         80         ; Softkey 4
;  102          0         1         81         ; Softkey 5
;  103          0         1         82         ; Softkey 6
;  104          0         1         83         ; Softkey 7
;
;  120          1         1         84         ; Softkey 8 <Shift + SK0>
;  121          1         1         85         ; Softkey 9 <Shift + SK1>
;   99          1         1         86         ; Softkey 10 <Shift + SK2>
;  100          1         1         87         ; Softkey 11 <Shift + SK3>
;  101          1         1         88         ; Softkey 12 <Shift + SK4>
;  102          1         1         89         ; Softkey 13 <Shift + SK5>
;  103          1         1         90         ; Softkey 14 <Shift + SK6>
;  104          1         1         91         ; Softkey 15 <Shift + SK7>
;
;
;=====
;                               Functions menu hot keys
;-----
; Scan          Modifier
; Code          MASK      Action Set   Action      Description
;=====
;
; The following is an example entry:
; 59           0         2         0         ; Call Details Hot key
;
;=====
;                               Services menu hot keys
;-----
; Scan          Modifier
; Code          MASK      Action Set   Action      Description
;=====
;
; The following is an example entry:
; 60           0         3         0         ; Toll and Assist Hot key
;
;=====
;                               OGT menu hot keys
;-----
; Scan          Modifier
; Code          MASK      Action Set   Action      Description
;=====
;
; The following is an example entry:
; 61           0         4         0         ; Assistance Hot key
;

```

```

;
;=====
;                               Trouble menu hot keys
;-----
; Scan      Modifier
; Code      MASK      Action Set      Action      Description
;=====
;
; The following is an example entry:
; 62          0          5          50          ; Wrong No. Hot key
;
;
;=====
;                               Applications menu hot keys
;-----
; Scan      Modifier
; Code      MASK      Action Set      Action      Description
;=====
;
; The following is an example entry:
; 63          0          6          0          ; OIA - Indirect Hot key
;
;
;=====
;                               CT4Q menu hot keys
;-----
; Scan      Modifier
; Code      MASK      Action Set      Action      Description
;=====
;
; The following is an example entry:
; 64          0          9          0          ; CT4Q - Indirect Hot key;
;
; end data

```

6.4.16 Table XKEYMAC

This is the IWS Key Macros Definition table. This table will define IWS macros which can be assigned to keys on the IWS keyboard.

6.4.16.1 XKEYMAC Field Descriptions

Table 39 shows the range of values for the fields belonging to table XKEYMAC. The table is followed by a description of each field.

Field Name	Range of Values
Macro Index	0 - 25
Macro Description	0-30 characters
Macro Contents	0 - 25 keys

TABLE 39. XKEYMAC Fields

Macro Index: This is a unique identifier for each macro.

Macro Description: There is a textual description for each macro.

Macro Contents: Contains the key values which define each key that is invoked for the macro. The values are generated using the Key Macros Utility of the KeyBind tool for datafill. Each key value is separated by a colon character.

6.4.16.2 XKEYMAC Sample Datafill

The sample table below illustrates the format of file XKEYMAC.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XKEYMAC.TBL
; -----
;
; Description:
; -----
;     IWS Key Macros Definition Table
;
;     This table will define macros for the IWS which
;     can be assigned to keys on the IWS keyboard.
;
;
; Fields:
; -----
;     Macro Index      Unique identifier for each macro (0-25)
;
;     Macro Description Text Description of each macro (0-30 characters)
;
;     Macro Contents   Key Values which define each key to be invoked
;                     for the macro. These are generated using the
;                     Key Macros Utility through the KeyBind tool for
;                     datafill. Each key is separated by a colon
;                     character.
;
; Macro  Macro      Macro
; Index  Description  Contents
; -----  -----  -----
;
;     0    "General Assistance" "101a:1000:100c:100c:"
;     1    "Special Station"    "100f:1013:"
;     2    "Special Person"    "100f:1012:"
;     3    "Charge Adjust 10"  "1018:1001:1003:100c:1001:1000:100c:"
;     4    "Notify 10"        "1018:1001:1001:100c:1001:1000:100c:"
;
; end of data

```

6.4.17 Table XLANG

This is the Language Name table. It equates an integer from 0 to 99 with a text string. The text string specifies the language information associated with a call. This text string is used to display language information. This table is applicable for QMS positions.

Note: Errors in the XLANG table will **not** cause position initialization failure.

6.4.17.1 XLANG Field Descriptions

Table 40 shows the range of values for the fields belonging to table XLANG. The table is followed by a description of each field.

Field Name	Range of Values
Language ID	0-99 decimal
Language Label	Up to 3 ASCII characters

TABLE 40. XLANG Fields

Language ID: This value identifies the language for a party on the call.

Language Label: This is a normal ASCII text string. The characters must be enclosed in double quotes. The text strings that appear in this field should match the datafill of DMS table TOPSLANG.

6.4.17.2 XLANG Sample Datafill

The sample table below illustrates the format of file XLANG.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XLANG.TBL
; -----
;
; Description:
; -----
;   Language Name Table
;
;   This table associates a text string with the DMS
;   language ID.
;
; Display:
; -----
;   Applications may display this text as an indication
;   to the operator of the Language Information associated
;   with the current call (both for the calling and
;   called party).
;
;
; Fields:
; -----
;   Lang ID      Language ID index, range 0 - 99
;
;   Lang Label   Language text string
;               The maximum string length is 3 characters
;
;-
; Notes:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;
; Lang ID      Lang Label
; -----      -----
;   0          "ENG"      ; English
;   1          "FRE"      ; French
;

```

6.4.18 XMEDSPID.TBL

This is the Message editor SPID mapping table.

6.4.18.1 XMEDSPID Field Descriptions

Table 40 shows the range of values for the fields belonging to table XMEDSPID. The table is followed by a description of each field.

Field Name	Range of Values

TABLE 41. XMEDSPID Fields

Language ID: This value identifies the language for a party on the call.

Language Label: This is a normal ASCII text string. The characters must be enclosed in double quotes. The text strings that appear in this field should match the datafill of DMS table TOPSLANG.

6.4.18.2 XMEDSPID Sample Datafill

The sample table below illustrates the format of file XMEDSPID.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

XMEDSPID.TBL		Message editor SPID mapping table
XMEDTG.TBL		Message editor trunk group mapping table
XMEMLDM.TBL		Message editor E-mail domains table
XMEMLNM.TBL		Message editor E-mail names (addresses) table
XMEMSG.TBL		Message editor message template file
XMESMSDM.TBL		Message editor SMS domains table
XMETR.B.TBL		Message editor trouble menu table

6.4.19 Table XOGTMENU

This is the Outtrunks menu table. It equates an integer from 0 to 99 with a text string indicating the outtrunk key. The text strings appear in the OGT menu window when it is displayed. This table is applicable for QMS positions.

6.4.19.1 XOGTMENU Field Descriptions

Table 42 shows the range of values for the fields belonging to table XOGTMENU. The table is followed by a description of each field.

Field Name	Range of Values
OGT Key	0-99 decimal
Key Label	Up to 30 ASCII characters

TABLE 42. XOGTMENU Fields

OGT Key: This value appears in the OGT menu when it is displayed in the Operator Information Window. The operator enters this value at the keyboard in order to invoke an OGT menu function.

Note: value 0 is always reserved for assistance request.

Key Label: This is a normal ASCII text string. The characters should be enclosed in double quotes. The text strings that appear in this field must match the labels found in DMS table TQOGTKEY for a QMS position. The text strings in this field appear in the OGT menu.

6.4.19.2 XOGTMENU Sample Datafill

The sample table below illustrates the format of file XOGTMENU.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XOGTMENU.TBL
; -----
;
; Description:
; -----
;   This table equates available outtrunks with
;   the text strings for display.
;
; Display:
; -----
;   In the OGT menu.
;
; Fields:
; -----
;   OGT Key      An integer value that becomes the numeric
;                in the OGT menu.
;                Valid range: 0-99
;
;   Key Label    The text string displayed along with the key
;                in the menu.
;                Max of 30 characters.;
;
; Comments:
; -----
; The first OGT key MUST always be the Assistance request.
;-
; Note:
; -----
;   String lengths of datafill lines should not exceed 80
;   characters.
;
; OGT
; Key      Key Label
; -----
;   0      Assistance"      ;MUST always be first
;   1      "XFR1"
;   2      "XFR2"
;   3      "XFR3"

```

6.4.20 Table XOLNSEQP

This is the OLNS Equipment table. It equates an integer from 0 to 99 with a text string indicating restricted billing for the calling party during an OLNS call. This text string may be used for display to indicate any related restricted billing for the Toll and Assistance service.

6.4.20.1 XOLNSEQP Field Descriptions

Table 43 shows the range of values for the fields belonging to table XOLNSEQP. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0-31 decimal
Eqp Num	0-99 decimal
Display Label	Up to 8 ASCII characters

TABLE 43. XOLNSEQP Fields

Switch ID: This value specifies the switch ID from which the call originated.

Eqp Num: This value identifies the billing restrictions associated with the calling party for the Toll and Assistance service.

Display Label: This is a normal ASCII text string. The characters must be enclosed in double quotes. The text string that appears in this field should match the display field of the DMS table OLNSEQDP.

6.4.20.2 XOLNSEQP Sample Datafill

The sample table below illustrates the format of file XOLNSEQP.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XOLNSEQP.TBL
; -----
;
; Description:
; -----
;     OLNS Equipment  table
;
;     This datafill table associates a text string to the
;     DMS OLNS Equipment Number index.
;
;
; Display:
; -----
;     Applications may display this text as an indication
;     to the operator of the billing restrictions associated
;     with the current call when received after an OLNS database
;     query.
;
; Fields:
; -----
;     Eqp Num           Calling party OLNS Equipment Number,  range 0 - 99
;
;     Display Label     Associated string for the index
;                       The max string length is 8 characters.
;
;     Switch ID         The originating switch ID, range 0 - 31
;
;
; Comments:
; -----
;     The switch ID in this table must correspond to those
;     datafilled in DMS table OCOFC.
;
;
; Note:
; -----
;     This table must match the DMS table OLNSEQDP.
;-
; Note:
; -----
;     String lengths of datafill lines should not exceed 80 characters.
;
;
;
; Switch ID           Eqp Num           Display
; -----           -----           -----
;           0           0           "SPLPOST"
;           0           1           "PRISON"
;           0           3           "DORMITRY"
;           0           4           "LECPRE"
;

```

6.4.21 Table XOLNSRST

This is the OLNS Restriction table. It equates an integer from 0 to 99 with a text string indicating restricted billing for the calling party during an OLNS call. This text string may be used for display to indicate any related restricted billing for the Toll and Assistance service.

6.4.21.1 XOLNSRST Field Descriptions

Table 44 shows the range of values for the fields belonging to table XOLNSRST. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0-31 decimal
OLNS Res Num	0-99 decimal
Display Label	Up to 8 ASCII characters

TABLE 44. XOLNSRST Fields

Switch ID: This value specifies the switch ID from which the call originated.

RstNum: This value identifies the OLNS restrictions associated with the calling party for the Toll and Assistance service.

Display Label: This is a normal ASCII text string. The characters must be enclosed in double quotes. The text string that appears in this field should match the display field of the DMS table OLNSRSDP.

6.4.21.2 XOLNSRST Sample Datafill

The sample table below illustrates the format of file XOLNSRST.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;:+
; -----
; Table:  XOLNSRST.TBL
; -----
;
; Description:
; -----
;     OLNS Restriction table
;
;     This datafill table associates a text string to the
;     DMS OLNS Restriction Number index.
;
;
; Display:
; -----
;     Applications may display this text as an indication
;     to the operator of the OLNS restrictions associated
;     with the current call.
;
; Fields:
; -----
;     OLNS Res Num          Calling party OLNS Restriction index
;                          Range 0 - 99
;
;     Display Label        Associated string for the index
;                          The max string length is 8 characters.
;
;     Switch ID            The originating switch ID, range 0 - 31
;
;
; Comments:
; -----
;     The switch ID in this table must correspond to those
;     datafilled in DMS table OCOFC.
;
;
; Note:
; -----
;     This table must match the DMS table OLNSRSDP.
;-
; Note:
; -----
;     String lengths of datafill lines should not exceed 80 characters.
;
;
; Switch ID                OLNS Res Num          Display
;                          OLNS Res Num          Label
; -----                -----
;     0                    0                    "NOSENTPD"
;     0                    1                    "CLCTONLY"
;     0                    3                    "ALTBILL"
;
;

```

6.4.22 Table XRBLG

This is the Restricted Billing table. It equates an integer from 0 to 99 with a text string indicating restricted billing for the calling party. This text string may be used for display to indicate any related restricted billing for the Toll and Assistance service.

6.4.22.1 XRBLG Field Descriptions

Table 45 shows the range of values for the fields belonging to table XRBLG. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0-31 decimal
Res Num	0-99 decimal
Display Label	Up to 8 ASCII characters

TABLE 45. XRBLG Fields

Switch ID: This value specifies the switch ID from which the call originated.

Res Num: This value identifies the billing restrictions associated with the calling party for the Toll and Assistance service.

Display Label: This is a normal ASCII text string. The characters must be enclosed in double quotes. The text string that appears in this field must match the display field of the DMS table RESTBIL.

6.4.22.2 XRBLG Sample Datafill

The sample table below illustrates the format of file XRBLG.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XRBLG.TBL
; -----
;
; Description:
; -----
;   Restricted Billing table
;
;   This datafill table associates a text string to the
;   DMS Restriction Number Index.
;
;
; Display:
; -----
;   Applications may display this text as an indication
;   to the operator of the billing restrictions associated
;   with the current call.
;
; Fields:
; -----
;   Res Num           Calling Party restricted billing index
;                     for Toll.
;                     Range 0-99
;
;   Display Label     Associated string for the index.
;                     The maximum string length is 8 characters.
;
;   Switch ID         The originating switch ID, range 0-31;
;
; Comments:
; -----
;   The switch ID in this table must correspond to those
;   datafilled in DMS table OCOFC.
;
; Note:
; -----
;   This table must match the DMS table RESTBIL.
;-
; Note:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;
;
; Switch ID           Res Num           Display
; -----           -----           -----
;   0                 0                 "RPD"
;   0                 1                 "RCOL"
;   0                 3                 "Rblg3"
;   0                 4                 "R3RD"

```

6.4.23 Table XRCXSC

File XRCXSC.TBL maps script IDs to specific reason codes. A reason code indicates why a call has been transferred to the IWS position. This table file is used by the NTOA application in standard scripting mode. This file is ignored if enhanced scripting is used.

6.4.23.1 XRCXSC Field Descriptions

The following table shows the range of values of the fields belonging to file XRCXSC.TBL

Field Name	Range of Values	Sample Values
Reason code	1000-4999	1001
Script ID	1-300	3

TABLE 46. XRCXSC.TBL Fields

Note: The reason codes in file XRCXSC.TBL must correspond to the reason codes in the CCDB.

Reason code: This field contains the numeric identifier of the reason for operator assistance.

Script ID: This field contains the numeric identifier of the script message and title associated with the reason code.

6.4.23.2 XRCXSC Sample Datafill

The sample table below illustrates the format of file XRCXSC.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
+; -----
; Table: XRCXSC.TBL
; -----
;
; Description:
; -----
; Reason Code to Script ID Table
;
; This table associates a script title/message
; with a "reason code". The reason code is
; is an indication of why a call has been transferred
; to position.
;
; Display
; -----
; Applications may display the script message
; as an indication of the "reason for attendant"
; for the current call. Brief call handling
; instructions may be included.
;
; Fields:
; -----
; Reason Code
; ID indicating "reason for attendant".
; The valid range for reason codes is 1000 to 4999.
;
; Script ID
; ID of script message(s) associated with the Call
; Origination type. The valid range for script IDs
; is 1 to 300.
;
; Comments:
; -----
; The reason codes in this table should correspond to those
; in the calling card database.
;-
; Notes:
; -----
; String lengths of datafill lines should not exceed 80 characters.
;
;
; Reason      Script
; Code       ID
; -----
; 1001       3      ; In this example, if Script 3 exists, it
;                               will be displayed for Reason Code 1001.

```

6.4.24 Table XSCRULES

This table lists IWS scripting rules. These rules map combinations of call parameters to script IDs. This table file is used by enhanced scripting. This file is ignored if standard scripting is used.

6.4.24.1 XSCRULES Field Descriptions

Table 48 shows the range of values for the fields belonging to IWS table XSCRULES. The table is followed by a description of each field.

Field Name	Range of Values
Rule Index	1-1000 decimal
Script ID	1-3000 decimal
Switch ID	"0"- "31", "*", or ""
Service ID	"0"- "62", "*", or ""
SPID	1 to 6 ASCII characters, "*", or ""
Trunk Group	"0"- "254", "*", or ""
Call Origination Type	"0"- "100", "*", or ""
CT4Q	"0"- "2046", "*", or ""
Billing Restriction Number	"0"- "99", "*", or ""
OLNS Restriction Number	"0"- "99", "*", or ""
OLNS Equipment Number	"0"- "99", "*", or ""

TABLE 47. XSERVS Fields

Rule Index: Index for listing rules. Up to a thousand script matching rules are supported. Each rule should have a unique index.

Script ID: Script message index. This value corresponds to the script number found in the script messages file, e.g. SCRIPTSCR.SCR.

Switch ID: Switch identifier. This value indicates the incoming switch.

Service ID: Service identifier. This value indicates the TOPS service.

SPID: Service Provider identifier. This value indicates the service provider of the calling party.

Trunk Group: This value indicates the trunk group of the calling party.

Call Origination Type: This value indicates the call origination type.

CT4Q: This value indicates the Call Type for Queuing for the current call.

Billing Restriction Number: This value indicates the billing restriction for the calling party.

OLNS Restriction Number: This value indicates the calling party's OLNS restriction.

OLNS Equipment Number: This value indicates the calling party's OLNS equipment.

6.4.24.2 XSCRULES Sample Datafill

The sample table below illustrates the format of file XSCRULES.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;XSCRULES
;The preceding line is used by ProvTool, DO NOT REMOVE!
;+
; -----
; Table:  XSCRULES.TBL
; -----
;
; Description:
; -----
;     Enhanced Scripting Rules Table
;
;     This datafill table associates an IWS Script ID with
;     various call parameters. Wildcards are supported for each
;     call parameter. For example, to specify any switch
;     ID put an "*" in the switch ID field. Some call parameters
;     may not exist for some calls. To specify a non existent
;     parameter, put "" in the appropriate field. For example,
;     to specify no OLNS restriction received put "" in the OLNS
;     restriction. A maximum of 1000 rules are allowed.
;
;
; Fields:
; -----
;     Script ID      The script message identifier, range 1-300.
;
;     Switch ID      The originating switch ID, range "0"- "31",
;                    "*", or "".
;
;     Service ID     The service type, range "0"- "62", "*", or "".
;
;     SPID           The service provider identifier string,
;                    range one to six quoted characters, "*",
;                    or "".
;
;     Trunk Group    The originating trunk group index, range
;                    "1"- "254", "*", or "".
;
;     Call Orig      The call origination type, range "0"- "100",
;     Type           "*", or "".
;
;     CT4Q          The call origination type, range "0"- "2046",
;                    "*", or "".
;
;     Billing Rest    The billing restriction number, range "0"- "99",
;     Number         "*", or "".
;
;     OLNS Rest      The OLNS restriction number, range "0"- "99",
;     Number         "*", or "".
;
;     OLNS Equip     The OLNS equipment number, range "0"- "99",

```

```

;      Number          "*" , or ".
;
;
;--
; Note:
; ----
;      String lengths of datafill lines should not exceed 80 characters.
;
;
;
;Script  Switch  Service  SPID      Trunk  Call  CT4Q  Billing  OLNS  OLNS
;ID      ID      ID      SPID      Group  Orig  Type  Number  Rest  Equip
;-----  -----  -----  -----  -----  -----  -----  -----  -----  -----
1         "0"      "0"      ""         "1"    "0"   "0"   "0"     ""    ""
2         "31"     "62"     "sw0t"    "254"  "100" "2046" "99"    "99"  "99"
299      "1"       "0"      "AAATEX"  "1"    "1"   "1"   "1"     ""    ""
290      "1"       "0"      ""         "1"    "1"   "1"   "1"     ""    ""
260      "1"       "1"      ""         ""     "36"  "257" "1"     ""    ""
3         "1"       "0"      "AAATEL"  "1"    "1"   "1"   "1"     ""    ""
4         "*"      "*"      "*"       "*"    "*"   "*"   "*"     "*"   "*"
;

```

6.4.25 Table XSERVS

This table lists the information about each of the TOPS services that the IWS position provides to the operator.

If the QMS call queuing system is used in the DMS, the TOPS service datafill in this file **MUST** match the DMS QMS TOPS service datafill.

6.4.25.1 XSERVS Field Descriptions

Table 48 shows the range of values for the fields belonging to IWS table XSERVS. The table is followed by a description of each field.

Field Name	Range of Values
TOPS Service Number	0-62 decimal
Application Tag	Up to 8 ASCII characters
Billing Application Tag	Up to 8 ASCII characters
Service Description	Up to 19 ASCII characters
Service Type Text	Up to 6 ASCII characters
Restricted Billing table	0-2

TABLE 48. XSERVS Fields

TOPS Service Number: This is the number of the TOPS Service. This datafill must match the datafill in DMS table TQMSSERV.

Application Tag: This is a text string. It uniquely identifies the position application that provides access to this service. It must be enclosed in double quotes (" "). This field **must exactly** match the tag documented by the application that provides the service.

Note: The NTOA application is now called the IWS Billing application. Continue to use NTOA as the application tag for the IWS Billing application.

Billing Application Tag: This ASCII string identifies the position application that provides billing functions for the TOPS service. It must be enclosed in double quotes (" "). This field **must exactly** match the tag documented by the application that provides the billing screen for this service.

Note: The NTOA application is now called the IWS Billing application. Continue to use NTOA as the application tag for the IWS Billing application.

Service Description: This descriptive ASCII text string is displayed in the Services menu Window and in the Assigned Activities Window. It must be enclosed in double quotes (" ").

Service Type Text: This ASCII text string describes the TOPS service at call arrival. It must be enclosed in double quotes (" ").

Restricted Billing Table: The number that identifies which restricted billing table to use for display of restricted billing information. The acceptable values are:

- 0 - No Restricted Billing table
- 1 - Toll Restricted Billing table
- 2 - DA Restricted Billing table

6.4.25.2 XSERVS Sample Datafill

The sample table below illustrates the format of file XSERVS.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table: XSERVS.TBL
; -----
;
; Description:
; -----
;     MPX-IWS Services table
;
;     This table lists information about each of the TOPS
;     services that the MPX-IWS position provides to the
;     operator.
;
;
;     If the QMS call queueing system is used in the DMS, the
;     service datafill in this file MUST match the service
;     numbers in the corresponding DMS table, TQMSSERV.
;     These numbers must be between 0 and 62.
;
;
; Display:
; -----
;     Service description      Services menu
;                               Assigned Activities Window
;
;     Service Type Text       Applications may display this text
;                               as an indication to the operator
;                               of the Service Type of the current
;                               call
;
; Fields:
; -----
;     TOPS Serv Num           The number of the TOPS service.
;
;     Appl Tag                 A quoted text string with a max length
;                               of 8 characters that identifies the
;                               position application which provides
;                               the TOPS service. This field MUST
;                               EXACTLY match the Tag documented by
;                               the application that provides the
;                               service.
;
;     Billing Appl Tag         A quoted text string with a max length
;                               of 8 characters that identifies the
;                               position application which provides

```

```

;           the billing functions for the TOPS
;           service. This field MUST EXACTLY
;           match the Tag documented by the
;           application that provides the Billing
;           screen for this service.
;
; Service Desc.      A quoted text string with a max length
;                   of 19 characters which provides the
;                   name of the service.
;
; Serv Type Text     A quoted text string with a max length
;                   of 6 characters that may be displayed
;                   by applications at call arrival to
;                   identify the TOPS service of the new
;                   call.
;
; Rest. Bill. Tbl.   The number that identifies which
;                   restricted billing table to use for
;                   display of restricted billing
;                   information.
;                   0 - No Restricted Billing table
;                   1 - Toll Restricted Billing table
;                   2 - DA Restricted Billing table
;-
; Note:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;
;
;TOPS
;Serv  Appl  Billing  Service  Service  Restricted
;Num   Tag   Tag     Description  Type Text  Billing
;-----
;
; 0     "NTOA" "NTOA"  "Toll and Assistance" "Toll"     1
;

```

6.4.26 Table XSPIDXSC

File XSPIDXSC.TBL is used to map a script ID to any service provider ID (SPID) in scripting. This table file is used in standard scripting mode. This file is ignored if enhanced scripting is used.

6.4.26.1 XSPIDXSC Field Descriptions

The following table shows the range of values of the fields belonging to file XSPIDXSC.TBL.

Field Name	Range of Values	Sample Values
SPID index	0 - 249	0
SPID	4 uppercase alphanumeric characters	SID0
script ID	1 - 300	4

TABLE 49. XSPIDXSC Fields

SPID index: This field contains a number that points to the location of a SPID listed in this table file.

SPID: This field contains a combination of the four uppercase characters and numbers that comprise a SPID.

script ID: This field contains a number that identifies a script title and message associated with a SPID.

6.4.26.2 XSPIDXSC Sample Datafill

The sample table below illustrates the format of file XSPIDXSC.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XSPIDXSC.TBL
; -----
;
; Description:
; -----
;     SPID to Script ID Table
;
;     This table associates a script title/message
;     with the SPID.
;

```

```

; Display
; -----
;   Applications may display the script title/message
;   as an indication to the operator of the SPID of the
;   current call. Brief call handling instructions may
;   also be included.
;
; Fields:
; -----
;
; SPID Index      The SPID Index, range 0-249.
;
; SPID            The Service Provider ID, any combination of 4
;                 alphanumeric characters.
;
; Script ID       The ID of script message associated with the SPID.
;                 The valid range for Script IDs is 1 to 300.
;
;
; Comments:
; -----
;   The SPID in this table must correspond to those datafilled in DMS
;   table SPID.
;
; -
; Notes:
; -----
;   1). String lengths of datafill lines should not exceed 80
;   characters.
;   2). This table can contain up to 250 cross references.
;
;
;   SPID
;   Index      SPID      Script ID
; -----
;   0          "SID0"    4
;   1          "NEWP"    4
;   2          "SID2"    4
;

```

6.4.27 Table XTGDSPL

This is the Trunk Group Display table. It equates an integer from 1 to 254 with a text string indicating the trunk group. It is displayed in a location specified by the application using this table.

Recommendation: The possible size of table XTGDSPL might easily exceed limits on the datafill file size that can be read into the IWS provisioning tool (it has a limit of 250KB for a single file as well as a limit of 3000 lines). Therefore, it is recommended that any editing of table XTGDSPL be done with a Windows text editor (Wordpad or Notepad), and not with the IWS provisioning tool.

6.4.27.1 XTGDSPL Field Descriptions

Table 50 shows the range of values for the fields belonging to table XTGDSPL. The table is followed by a description of each field.

Field Name	Range of Values
Switch ID	0-31 decimal
Trunk Group	1-254 decimal
Trunk Group Label	Up to 8 ASCII characters

TABLE 50. XTGDSPL Fields

Switch ID: This value specifies the originating switch ID.

Trunk Group: This value specifies the originating trunk group.

Trunk Group Label: This is a normal ASCII text string for the call arrival display. The text must be enclosed in double quotes. The text strings that appear in this field must match the datafill of DMS table TOPSDISP.

6.4.27.2 XTGDSPL Sample Datafill

The sample table below illustrates the format of file XTGDSPL.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;+
; -----
; Table: XTGDSPL.TBL
; -----
;
; Description:
; -----
;     Trunk Group Display Table
;

```

```

;      This datafill table associates a text string with the
;      DMS Trunk Group Display index, based on the switch ID
;      of the call origination.
;
;
; Display:
; -----
;      Applications may display this text as an indication
;      to the operator of the Trunk Group Display.;
;
; Fields:
; -----
;      Switch ID      The originating switch ID, range 0 - 31
;
;      Trunk Group    The originating trunk group index,
;                      range 1 - 254
;
;      Trunk Group Disp  The text string associated with the trunk
;                      group index.  The max string length is 8
;                      characters.
;
; Note:
; -----
;      The switch ID in this table must correspond to those
;      datafilled in DMS table OCOFC.
;      The trunk group ID in this table must correspond to those
;      datafilled in DMS table TOPSDISP.
;
;-
; Notes:
; -----
;      String lengths of datafill lines should not exceed 80 characters.
;
;
;
; Switch      Trunk      Trunk Group
;   ID        Group      Display
; -----
;           0           1           "BOISE"
;           0           2           "ILLNDA"
;           1           1           "swltg1"
;           1           2           "swltg2"

```

6.4.28 Table XTROUBLE

This is the Trouble menu table. It equates an integer from 0 to 99 with a text string indicating the trouble code. The associated text strings are displayed in the Trouble menu.

6.4.28.1 XTROUBLE Field Descriptions

Table 51 shows the range of values for the fields belonging to table XTROUBLE. The table is followed by a description of each field.

Field Name	Range of Values
Trouble ID	0-99 decimal
Trouble Text	Up to 30 ASCII characters

TABLE 51. XTROUBLE Fields

Trouble ID: This value specifies the trouble code.

Trouble Text: This is a normal ASCII text string describing the Trouble Code.

6.4.28.2 XTROUBLE Sample Datafill

The sample table below illustrates the format of file XTROUBLE.TBL. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this table must be pertinent to the particular site.

```

;
;+
; -----
; Table:  XTROUBLE.TBL
; -----
;
; Description:
; -----
;      Trouble Table
;
;      This table equates customer definable trouble codes
;      with text strings for display in the trouble menu.
;
;
; Display:
; -----
;      In the trouble menu, Applications may choose to
;      to display the selected trouble code.
;
; Fields:
; -----
; Trouble ID      Customer defined trouble code, range 0 - 99.
;
; Trouble Text    A text description of the trouble report,
;                 max string length 30 characters.

```

```

;
; Screen Capture      Denotes whether a screen capture is to be
;                      automatically generated with the entry of
;                      the given Trouble ID. Range - single char Y or N
;
;-
; Note:
; -----
;   String lengths of datafill lines should not exceed 80 characters.
;
;
; Trouble              Screen
; ID                  Trouble Text          Capture
;-----
; 50      "Wrong No. or bad Intercept"      N
; 51      "No Ring - No Answer"            N
; 52      "Noise during conversation"       N
; 53      "Can't Hear-Can't be Heard"      N
; 54      "Improper Supervision"           N
; 55      "Cut off during conv."           N
; 56      "Reorder (3rd Att.)"             N
; 57      "No Oper. Ans./Dial Tone Return" N
; 58      "Recorded announcement"         N
;
;
; end of data
;

```


7.0 Initialization (INI) Files

IWS uses Windows-style initialization files which are specific to IWS. These initialization files contain settings used by various IWS applications.

Initialization files allow comment lines which begin with a semicolon. Initialization files are composed of sections and sections are composed of entries. An entry can have an integer value or a string value. During manual editing, do not enter more than 80 characters per line for any line in these files (this is not an issue when using IWS provisioning tool). The basic form of the file is:

```
; Comment
[section name]
entry=value
```

IWS initialization files are listed in the table below.

INI File	Page	Applicability	Description
MPXINI.INI	281	TDM, IP	IWS initialization file
MPXNET.INI	289	TDM, IP	IWS network initialization file
POSINFO.INI	279	IP only	IWS IP Position information initialization file
AUDIOINI.INI	296	TDM only	Audio card initialization file
MPXPARM.INI	296	TDM, IP	IWS parameter file
MPXTOP.INI	307	TDM, IP	IWS Billing (previously NTOA) parameter file
SCRPTINI.INI	310	TDM, IP	Scripting window initialization file

TABLE 52. IWS Initialization Files

7.1 MPXINI.INI

Use the IWS provisioning tool to datafill this file. MPXINI.INI is the IWS initialization file. This file resides in the standard Windows directory, C:\WINDOWS. The MPXINI.INI file is used solely by the IWS base application. The AUDIO section is the only section in this file which has specific parameters that may be applicable to only TDM or IP position configurations.

7.1.1 MPXINIT Section

Datapath parameter: The value is set to specify the location of the IWS datafill INI, TBL, and LNG files.

7.1.2 APPLICATIONS Section

One of the main purposes of the MPXINI.INI file is to start applications. Applications can be one of three types, registering, default registering, or non-registering.

- Registering applications - require registration handshaking with the IWS base software

-
- Default registering applications - require registration and will receive focus if a service change arrives for a service that is not provided on the position
 - Non-registering applications - do not require registration.

Up to 16 registering and 16 non-registering applications are supported. The number of registering applications also includes the default registering applications. If more registering or non-registering applications are listed in file MPXINI.INI than are supported by the loaded base configuration, the other listed, but unsupported, applications are ignored.

Note: The NTOA application is now called the IWS Billing application. Continue to use NTOA as the name for the IWS Billing application in the MPXINI.INI file.

- NonRegistering parameter: For a general operator position, no entry is required. For a RAMP, enter the value “RAMP.”
- DefaultApplication parameter: If this field is not filled in, enter the name and directory path of the application that is switched to when a call arrives at the IWS position and no other registering application is listed; for example, C:\IWSNTOA\NTOA.EXE. The default application is counted as a registering application.
- Registering parameter: Enter the applications that register with the IWS Base.

Application entry lines have a character limit of 128 bytes. Each entry line can contain one application. For Windows applications, the extension can be omitted. The path can be added either to the PATH environmental variable or to file MPXINI.INI. If an application requires command line parameters, they can follow the application name on the same line. Example application entry lines are shown in the MPXINI.INI example on page 285.

7.1.3 TIMERS Section

The Timer Options in the MPXINI.INI file are used to vary the time-out values that the IWS base software waits for a response from applications before creating a log.

- AppServRespTimeout parameter: Enter the value in seconds before the application times out waiting for a service response. In most cases applications can respond immediately, so this value can be very small. If the service that an application provides requires more time to determine if the service is available, then this value can be increased.
- AppApplRespTimeout parameter: Enter the value in seconds for applications to return the application response message.
- AppLogonTimeout parameter: Enter the time-out value in seconds for applications to log on to the service that they provide and return the service logon response message. If the service requires more time to log on, for example, time to log on to a database, this timer value can be increased.

All three timers have a default value of 10 seconds, and can be in a range of 5–60 seconds. Values outside this range will result in entry of the default value.

7.1.4 AUDIO Section

7.1.4.1 TDM Positions

The audio card parameters are set to tell the IWS base software that a Nortel Networks digital audio card is installed in the position. The values for these parameters are set to “1” in the default MPXINI.INI file supplied with the IWS base software load. This setting assumes that the Nortel Networks digital audio card is installed. In addition, there is a parameter that determines whether or not a status change of the headset will change the position state of the position.

- AudioCard parameter: Enter “1” if an audio card installed in the IWS position and “0” if no audio card is installed. The default value is “1.”
- WavDeviceSupported parameter: Enter “1” to enable the Sonalert device or “0” if the device is not supported. The default value is “0.”
- AudioClock parameter: Enter “1” if an audio clock connection is attached to the audio card. This is the default value and should not be changed in a working position. For Nortel Networks and application designers only, the value can be changed to “0.”
- HeadsetDriver parameter: Enter “1” to enable the status of the headset to drive position logon and logoff. Enter “0” if you do not want the status of the headset to drive position logon and logoff. The default value is “0.”

7.1.4.2 IP Positions

The audio card parameters are set to tell the IWS base software that an approved audio device is installed in the position. The only supported audio device is the Plantronics DA55/DA60 headset, which is a USB device containing its own DSP. The DA55 and the DA60 are two packaging variations of the same USB device; references to the DA60 headset in IWS documentation or in the MPXINI file also apply to the DA55. Please refer to “Appendix E: Plantronics headset” on page 503 for additional information.

A parameter is provided to set the default volume of the Plantronics DA60 headset. Another parameter is provided to set the level of sidetone on the DA60 headset. Another parameter is provided to provision DA60 headset EQ presets, which are optimized settings for a particular Plantronics headset model that is used with the DA60 device. Parameters are provided to optionally disable the inline microphone mute control and the inline headset volume control, if the DA60 comes equipped with one.

With IP positions, the Wavefile Sonalert device option is supported, but it is essential that the Plantronics DA60 be configured as the Audio and Voice Default Playback and Recording devices. See “Enabling the Audible Alert” for more details.

- AudioCard parameter: A setting of “1” assumes that the Plantronics DA60 is installed. An IP Position will not successfully initialize without an approved audio device. A setting of “0” is only supported for testing purposes. With a setting of “0”, an IP Position will not be able to handle calls. The default value is “1”.

-
- **HeadsetDriver** parameter: Enter “1” to enable the status of the headset to drive position logon and logoff. Enter “0” if you do not want the status of the headset to drive position logon and logoff. The default value is “0.”
 - **InitHeadsetVolume** parameter: Enter a value between 1 and 12 to set the initial headset volume for the Plantronics headset. The default value is “7”.
 - **SideToneLevel** parameter: The SideToneLevel parameter controls the level of sidetone on the DA60. Sidetone is local feedback of sound from the microphone to the headset. A setting of 5 turns off sidetone. The range of settings is 0 to 5, which correspond to the following levels of attenuation:
 - 0 = 6 DB
 - 1 = 9 DB
 - 2 = 12 DB
 - 3 = 18 DB - Puck power-up default value
 - 4 = 0 DB - Loudest sidetone (no attenuation)
 - 5 = No SidetoneThe default setting is 4.
 - **HeadsetModelEQ**: The HeadsetModelEQ parameter sets default Receive equalization to optimum values and scales acoustic dose data to match the electroacoustic response of a particular headset model that is used with the DA60. The values map to headset models as follows:
 - 0 = None - No headset model. Use flat response.
 - 1 = H81 - Tristar
 - 2 = H51,H61 - Supra monaural, Supra binaural
 - 3 = H41 - Mirage
 - 4 = H91,H101- Encore monaural, Encore binaural
 - 5 = H141- Duoset
 - 6 = Duopro - Includes all Duopro models (H151, H161, H181)The default value is 4. This parameter should be set to the value that maps to the headset top model being used.
 - **MuteButtonDisable** parameter: Enter “1” to disable the manual inline microphone mute control, if the DA60 comes equipped with one. The default value is “0”, which enables the inline mute control.
 - **VolumeButtonDisable** parameter: Enter “1” to disable the manual inline headset volume control, if the DA60 comes equipped with one. The default value is “0”, which enables the inline volume control.
 - **WavDeviceSupported** parameter: Enter “1” to enable the Sonalert device or “0” if the device is not supported. The default value is “0.”

7.1.5 DEBUG Section

These parameters are used by Nortel Networks design and support personnel to access debug tools. These parameters are disabled in the default MPXINI.INI file supplied with

the IWS base software load. The Debug options and their relationship to the IWS position are explained in this section.

- NoTimers=1 Will disable Base timers waiting for API responses. This option is used only by Nortel Networks and application designers.
- KeyRepeat=1 Will disable Base from modifying the KeyboardDelay and KeyboardSpeed settings in the WIN.INI file. This option is used only by Nortel Networks and application designers.

7.1.6 MPXINI.INI Example

The file shown here is an example of the MPXINI.INI file. Use the IWS provisioning tool to datafill this file.

```
;MPXINI
;The preceding line is used by ProvTool, DO NOT REMOVE!
;+
; The Datafill Path option allows the user to select the
; path of position datafill required for IWS Base and
; support applications.
;
;
; NonRegistering      - Applications that will NOT require
;                      registration with IWS Base.
;
; Default Registering - Application that WILL require
;                      registration with IWS Base, and will
;                      receive focus if a service change
;                      arrives for an service that is not
;                      provided on the position.
;
; Registering         - Applications that WILL require
;                      registration with IWS Base.
;
; The NonRegistering, Default Registering, and Registering
; application filenames have a character limit of 128 bytes.
; The file path can be included here with the filenames or
; in the PATH variable in the AUTOEXEC.BAT file. Include
; any command line parameters after the filename.
;
; As of IWS release 14.0, the two categories IWS Base Standard
; and IWS Base Extended were replaced with one category called
; IWS Base. This configuration supports up to 16 Registering
; and 16 NonRegistering applications.
;
; Note that The number of Registering applications still
; includes the Default Registering application.
;
; The Timeout values are for TOPS Service Response,
; Application Response and Application Logon Response. The
; default values are 10 seconds each and can be changed from
; a range of 5 to 60 seconds.
```

```
;
; The Debug options are used for debugging purposes only. They
; should not be set during normal call processing.
;
;
;
; Following describes the AUDIO section parameters in detail:
;
; AudioCard:
; For TDM positions, the AudioCard option is set to '1' (default)
; when an actual Audio Card exists in the system. Otherwise, this
; should be set to '0' so AudioCard logic is bypassed.
;
; For IP positions, the AudioCard option is set to '1' to indicate
; that a valid Audio Device has been installed. Currently the only
; supported Audio Device is the Plantronics DA60 headset. If an
; Audio Device is not installed, the IWS software will not initialize
; with a setting of '1'. A setting of '0' is normally used for
; testing. An IP position cannot receive calls without a valid Audio
; Device.
;
; InitHeadsetVolume:
; This parameter is for IP positions only.
; The InitHeadsetVolume parameter sets the initial headset speaker
; volume for the headset. The range is 1 to 12, with the default
; being 7.
;
; SideToneLevel:
; This parameter is for IP positions only.
; Determines the level of sidetone on the DA60. Sidetone is local
; feedback of sound from the microphone to the headset. A setting
; of 5 turns off sidetone. The range of settings is 0 to 5, which
; correspond to the following levels of attenuation:
; 0 = SixDB
; 1 = NineDB
; 2 = TwelveDB
; 3 = EighteenDB - Puck power-up default value
; 4 = ZeroDB - Loudest sidetone (no attenuation)
; 5 = No Sidetone
; The default setting is 4.
;
; HeadsetModelEQ:
; This parameter is for IP positions only.
; The HeadsetModelEQ parameter sets default Rx equalization
; to optimum values and scales acoustic dose data to match the
; electroacoustic response of a particular headset model that is
; used with the DA60. The values map to headset models as follows:
; 0 = None - No headset model. Use flat response.
; 1 = H81 - Tristar
;
; 2 = H51,H61 - Supra monaural, Supra binaural
; 3 = H41 - Mirage
; 4 = H91,H101- Encore monaural, Encore binaural
; 5 = H141- Duoset
```

```

; 6 = Duopro - Includes all Duopro models (H151, H161, H181)
; The default value is 4. This parameter should be set to the value
; that maps to the headset top being used.
;
; MuteButtonDisable:
; This parameter is for IP positions only.
; This parameter, when set to 1, disables the manual inline microphone
; mute control, if the DA60 comes equipped with one. The default value
; is 0, which enables the inline mute control.
;
; VolumeButtonDisable:
; This parameter is for IP positions only.
; This parameter, when set to 1, disables the manual inline headset
; volume control, if the DA60 comes equipped with one. The default value
; is 0, which enables the inline volume control.
;
; WavDeviceSupported:
; For both IP and TDM positions, WavDeviceSupported is the parameter
; for audible alert Wavefile support and its default is 0. When this
; parameter is set to 1, audible alert wavefile support is on.
;
; AudioClock:
; For TDM positions only, the AudioClock option is set to '1'(default)
; when an Audio Clock Source is attached to the Audio Card. For testing
; situations, this parameter can be set to '0' so that the AudioClock
; logic is bypassed. This parameter is ignored by an IP position.
;
; HeadsetDriver:
; For both IP and TDM positions, the HeadsetDriver option is set to
; '0'(default)
; to indicate that the headset will not drive the position state of the
; machine for TDM. If the user wants the seating and unseating of the
; headset to drive logon and logoff, the HeadsetDriver option should be
; set to '1'.
;
;-

```

```

[MPXINIT]
Datapath=c:\mpxbase\datafill\

```

```

[APPLICATIONS]
NonRegistering1=
NonRegistering2=
NonRegistering3=
NonRegistering4=
NonRegistering5=
NonRegistering6=
NonRegistering7=
NonRegistering8=
NonRegistering9=
NonRegistering10=
NonRegistering11=
NonRegistering12=
NonRegistering13=
NonRegistering14=
NonRegistering15=

```

NonRegistering16=

DefaultApplication=

Registering1=
Registering2=
Registering3=
Registering4=
Registering5=
Registering6=
Registering7=
Registering8=
Registering9=
Registering10=
Registering11=
Registering12=
Registering13=
Registering14=
Registering15=

[TIMERS]

AppServRespTimeout=10
AppApplRespTimeout=10
AppLogonTimeout=10

[AUDIO]

AudioCard=1
WavDeviceSupported=0
AudioClock=1
HeadsetDriver=0
InitHeadsetVolume=7
SideToneLevel=4
HeadsetModelEQ=4
MuteButtonDisable=0
VolumeButtonDisable=0

[Debug]

; IWS debug options.

; ScreenResolution
; 5 - 1600x1200
; 4 - 1280x1024
; 3 - 1024x768
; 2 - 800X600
; 1 - 640x480
; 0 - Current screen resolution
;
ScreenResolution=0

Notimers=0
KeyRepeat=0
StartRegAppsQuery=0
NoIWSControlOfScreenSaver=0
ScreenSaverTimeOutValueInSeconds=0
NoDMSSettingIWSClock=0
DispVerification=0
AppRegTimeout=40
KeyMacroDelayMsec=50
SimultaneousMessageBlocking=0
TraceMsgComInfo=0

7.2 MPXNET.INI

Use the IWS provisioning tool to datafill this file. The MPXNET.INI file is used to define the IWS cluster and position configuration. The file resides in the standard Windows directory, C:\WINDOWS, and is used solely by the IWS base application. Both TDM and IP positions use the MPXNET.INI file, but each only uses specific sections in the file. The NETCONFIG and CLUSTER sections are applicable to TDM positions only. The IPCONFIG and IPMTCCLUSTER sections are applicable to IP positions only.

7.2.1 TDM Positions

The MPXNET.INI file must be the same for all positions in a cluster. The actual order of the information in the file is not important, but equivalent information must be on each IWS position. Conflicting MPXNET.INI configurations in a cluster can cause system problems and result in an improperly functioning position. Missing, although unneeded, information in some positions will not stop a position from functioning properly, but unwanted side effects relating to X.25 link usage can result.

7.2.1.1 NetConfig Section

The items controlled by the parameters in the network configuration section are considered to be network-wide values. Under normal situations, these values are expected to be the same on all positions in a cluster; however, this is not enforced. If you choose to make these values inconsistent, you bear the responsibility for ensuring a proper configuration. Assigning multiple log servers is a common reason for having differing network configurations in a network.

- PVCformat parameter: Enter a value for either standard (STD) or increased multiplexed (IMUX). This value must agree with the DMS switch datafill controlling the PVC layout used by the TOPS message switch (TMS). The format associated with the STD type supports only a 4-position configuration. The IMUX type supports three formats which allow configurations of 4, 16, and 20 positions. Acceptable PVCformat values are STD4, IMUX4, IMUX16, and IMUX20. The default value is IMUX20.

All nodes are identified by their hostname. The hostname is defined in the network C:\WINDOWS\SYSTEM32\DRIVERS\ETC\HOSTS file. The host file maps names to actual Internet addresses. The HOSTS file allows external network programs to use the same node hostnames that are used by IWS. Examples of external network programs are “ping” and any third-party SNMP management product.

The following tables show these four PVC layout types.

PVC assignments	Destination	Use
1-4	Positions 0-3	Reserved
5	IWS X.25 application	OIA maintenance PVC

TABLE 53. Standard 4 (STD4) PVC Layout

PVC assignments	Destination	Use
6-9	Positions 0-3	OIA messaging
10	IWS gateway maintenance application	DMS maintenance PVC
11-14	Positions 0-3	DMS messaging

TABLE 53. Standard 4 (STD4) PVC Layout

PVC assignments	Destination	Use
1	IWS gateway maintenance application	DMS maintenance PVC
2-5	Positions 0-3	DMS messaging
6	IWS X.25 application	OIA maintenance PVC
7-10	Positions 0-3	OIA messaging

TABLE 54. Increased Multiplex 4 (IMUX4) PVC Layout

PVC assignments	Destination	Use
1	IWS gateway maintenance application	DMS maintenance PVC
2-17	Positions 0-15	DMS messaging
18	IWS X.25 application	OIA maintenance PVC
19-34	Positions 0-15	OIA messaging

TABLE 55. Increased Multiplex16 (IMUX16) PVC Layout

PVC assignments	Destination	Use
1	IWS gateway maintenance application	DMS maintenance PVC
2-21	Positions 0-19	DMS messaging
22	IWS X.25 application	OIA maintenance PVC
23-42	Positions 0-19	OIA messaging

TABLE 56. Increased Multiplex 20(IMUX20) PVC Layout

- logsrv parameter: Enter the node that will receive the logs created by any application on the ring. The destination has to be a valid LAN destination to a position that is running the remote access maintenance position (RAMP) application, but it does not have to be an IWS position supporting an operator. All positions in a cluster should use a single log server (or only one RAMP position per IWS LAN).
- CheckCluster parameter: Enter “true” to set a check to ensure that positions are in a valid cluster. **It is important to set this value to false when the RAMP is not datafiled as a position in a cluster.**

7.2.2 Cluster Section

Within an IWS LAN, positions are grouped into clusters. The datafill in the cluster section provides a mapping between the position definitions and the network addressing scheme provided by the network TCP/IP software. The cluster and position assignments in the MPXNET.INI file and their relationship to the network addressing, which also must be defined, are explained in this section.

The clusters and positions defined in file MPXNET.INI must match the DMS datafill in tables PVCTYPE, TMSPVC, TDCDEF, and TPCINV.

The number of positions assigned to a cluster determines the ratio of operator positions to DMS gateways. There is always one and at most two DMS gateways in a cluster. (Two DMS gateways are recommended for data link redundancy.) Assigning a larger number of operator positions to a cluster allows for more efficient use of the DMS gateways.

Also, one position on a physical token ring can be designated as the RAMP for a set of clusters. All positions in each cluster use a single RAMP. The position running the RAMP application is identified by the logsrv parameter in the NetConfig section. The CheckCluster parameter provides a check to ensure that positions are in a valid cluster.

It is important to set this value to false when the RAMP is not datafilled as a position in a cluster.

Clusters must be numbered sequentially beginning with zero. Valid position numbers start at zero and range to a maximum position number of 19. Position numbers are not required to be sequential. One or two DMS gateways exist in each cluster. Gateway A is required. Gateway B is optional. The format of the cluster, position and gateways definitions must be followed for proper interpretation of the datafill.

Two example cluster definitions are shown below. The parameter, that is, fixed portion of the definition format is shown in bold text. The italic text shows the portion of the format that can vary from token ring to token ring. In the examples below, the clusters have a PVC format type of IMUX20.

First, a cluster (Cluster0) that is fully populated with 20 IWS positions is shown:

```
[Cluster0]
pos0=node0
pos1=node1
pos2=node2
pos3=node3
pos4=node4
pos5=node5
pos6=node6
pos7=node7
pos8=node8
pos9=node9
pos10=node10
pos11=node11
pos12=node12
pos13=node13
pos14=node14
pos15=node15
```

```
pos16=node16
pos17=node17
pos18=node18
pos19=node19
gtwyA=node0
gtwyB=node1
```

And next, a cluster (Cluster1) partially populated with four positions is shown as a second example.

```
[Cluster1]
pos2=nodeA
pos3=nodeB
pos10=nodeC
pos17=nodeD
gtwyA=nodeC
gtwyB=nodeD
```

All of the position and gateway definitions provide a mapping to the machine addressing provided by the network TCP/IP software. All definitions associate a position/gateway with a “host name. The host names are shown in italics in the examples above. These host names must be defined in the C:\WINDOWS\SYSTEM32\DRIVERS\ETC\HOSTS file for the network. Each PC on a token ring must have the same HOSTS file. However, no restrictions are made on the Internet addressing scheme or sub-network settings. The actual addresses assigned to the positions do not affect the IWS software. The default MPXNET.INI cluster definitions and the default C:\WINDOWS\SYSTEM32\DRIVERS\ETC\HOSTS file are shown below.

7.2.3 MPXNET.INI Example for TDM Positions

```
[NetConfig]
PVCformat=IMUX4
logsrv=node1
CheckCluster=true

[Cluster0]
pos0=node0
pos1=node1
pos2=node2
pos3=node3
gtwyA=node0
gtwyB=node1

[Cluster1]
pos0=node4
pos1=node5
pos2=node6
pos3=node7
gtwyA=node4
gtwyB=node5
```

The default **HOSTS** file for the above cluster definitions is:

```
# Default Hosts file
```

```
# IWS node definitions
    128.3.0.1      node0
    128.3.0.2      node1
    128.3.0.3      node2
    128.3.0.4      node3
    128.3.0.5      node4
    128.3.0.6      node5
    128.3.0.7      node6
    128.3.0.8      node7
```

7.2.4 IP Positions

The MPXNET.INI specifies IP network information concerning DNS host names and UDP port numbers. These host names must be defined in the C:\WINDOWS\SYSTEM32\DRIVERS\ETC\HOSTS file for the network, where the host name is mapped to an IP Address. The IPCONFIG section defines host names of nodes that the position communicates with and the UDP port numbers on which the nodes communicate. The IPMTCCLUSTER section defines the host names of IP positions that are maintained by a given RAMP position.

7.2.4.1 IPConfig Section

The IPCONFIG section contains the parameter `OPPOverIP`, which when set to “1” indicates that the position is an IP position. If this parameter is set to “0”, or is not found, the IWS software will treat the position as a TDM position, and expect to read in the required TDM specific datafill. This parameter may be useful when a position has MPXNET.INI datafill for both IP and TDM positions, and is being transitioned.

The IPCONFIG section also contains the parameter `DMSNode`, which contains the host name (mapped to an IP address in the HOSTS file) where the IP position communicates to the DMS IP XPM. The `DMSPortIn` and `DMSPortOut` parameters define the UDP port numbers for incoming and outgoing messaging to the DMS IP XPM.

Note: For obtaining the IP address of the DMS IP XPM, please refer to the *TOPS-IP Users Guide*, 297-8403-906.

The `IPMtcSrv` parameter defines the host name (mapped to an IP address in the HOSTS file), of the RAMP position that maintains this IP position. If this parameter is datafilled, then the IPMTCCLUSTER section must also be datafilled.

The `OIANode` parameter contains the host name (mapped to an IP address in the HOSTS file) of the OIA database that the IP position’s OIA application communicates with. The `OIAPortIn` and `OIAPortOut` parameters define the UDP port numbers for incoming and outgoing messaging to the OIA database. The `OIANode`, `OIAPortIn`, and `OIAPortOut` parameters are only required on an IP position running the OIA application.

- `OPPOverIP` parameter: Enter “1” for an IP position.
- `DMSNode` parameter: Enter a hostname that is mapped in the HOSTS file to the IP address of the DMS IP XPM that the position is to communicate with.
- `DMSPortIn` parameter: Enter the UDP port number that will be used for messaging from the DMS to the IP position.

- **DMSPortOut** parameter: Enter the UDP port number that will be used for messaging from the IP position to the DMS. This parameter must match DMS datafill that specifies the UDP port number that the DMS is listening on for incoming messages from IP positions.
- **IPMtcSrv** parameter: Enter a hostname that is mapped in the HOSTS file to a valid IP address of the RAMP position that maintains this IP position.
- **OIANode** parameter: Enter a hostname that is mapped in the HOSTS file to a valid IP address of the OIA database that the position is to communicate with.
- **OIAPortIn** parameter: Enter the UDP port number that will be used for messaging from the OIA database to the IP position. This parameter must match OIA database configuration information that specifies the UDP port number on which the OIA database is sending messages to IP positions.
- **OIAPortOut** parameter: Enter the UDP port number that will be used for messaging from the IP position to the OIA database. This parameter must match OIA database configuration information that specifies the UDP port number that the OIA database is listening on for incoming messages from IP positions.

UDP ports 5000-5099 are reserved for other IWS applications. The **DMSPortIn**, **DMSPortOut**, **OIAPortIn**, and **OIAPortOut** parameters should not be datafilled in this range. It is recommended that these parameters not be datafilled with UDP port numbers that are recommended for TOPS IP OC applications; these include 2326-2444, 5150, and 8600-8899. See NTP 297-8403-906 *TOPS-IP Users Guide*.

7.2.4.2 IPMtcCluster Section

The **IPMtcCluster** section defines the hostnames (mapped to IP addresses in the HOSTS file) maintained by the RAMP position whose hostname is configured as **IPMtcSrv** parameter in the **IPCONFIG** section. It should be noted that if the position is not a RAMP position itself, but is maintained within a RAMP cluster, the **IPMtcCluster** section datafilled on that position should match that of the RAMP position (at a minimum, it needs to have a **pos#** entry for itself that matches the datafill on the RAMP). For DMS IP positions, the maximum **IPMtcCluster** size supported by a RAMP position is 20.

An example of a fully populated **IPMtcCluster** with 20 IWS positions is shown:

```
[IPMtcCluster]
pos0=node0
pos1=node1
pos2=node2
pos3=node3
pos4=node4
pos5=node5
pos6=node6
pos7=node7
pos8=node8
pos9=node9
pos10=node10
```

```
pos11=node11
pos12=node12
pos13=node13
pos14=node14
pos15=node15
pos16=node16
pos17=node17
pos18=node18
pos19=node19
```

7.2.4.3 MPXNET.INI Example for IP Positions

```
[IPConfig]
OPPOverIP=1
DMSNode=dmsnode
DMSPortIn=6000
DMSPortOut=7000
OIANode=oianode
OIAPortIn=8000
OIAPortOut=8001
IPMtcSrv=node1
```

```
[IPMtcCluster]
pos0=node0
pos1=node1
pos2=node2
pos3=node3
pos4=node4
pos5=node5
pos6=node6
pos7=node7
pos8=node8
pos9=node9
pos10=node10
pos11=node11
pos12=node12
pos13=node13
pos14=node14
pos15=node15
pos16=node16
pos17=node17
pos18=node18
pos19=node19
```

```
# Example Hosts file
# IWS node definitions
    128.3.0.1      node0
    128.3.0.2      node1
    128.3.0.3      node2
    128.3.0.4      node3
    128.3.0.5      node4
    128.3.0.6      node5
    128.3.0.7      node6
    128.3.0.8      node7
```

128.3.0.9	node8
128.3.0.10	node9
128.3.0.11	node10
128.3.0.12	node11
128.3.0.13	node12
128.3.0.14	node13
128.3.0.15	node14
128.3.0.16	node15
128.3.0.17	node16
128.3.0.18	node17
128.3.0.19	node18
128.3.0.20	node19
128.3.0.21	dmsnode
128.3.0.22	oianode

7.3 POSINFO.INI

The POSINFO.INI file holds position specific information related to the DMS IP configuration under the POSIPCONFIG section. The parameter PosNumber is datafilled with the position number that is used for position maintenance on the DMS. This position number must be datafilled in the DMS table TOPSPOS. This concept of datafilling the position number on the terminal only applies to DMS IP positions and differs from the existing TDM configuration.

Note: To edit this file, please use NotePad or any existing text editor. The IWS provisioning tool cannot be used on this file.

The parameter SendExtLinkAlarm, if set to “1”, indicates that the Position should report an external database failure to the switch. If this parameter is set to “0”, or is not found, the Position will not report the external database failure. At most, only a small subset of positions should be datafilled to send this alarm. Too many positions simultaneously sending alarm messages may impact DMS performance.

7.4 AUDIOINI.INI

Use the IWS provisioning tool to datafill this file. The AUDIOINI.INI file resides in the standard Windows directory, C:\WINDOWS. The AUDIOINI.INI file is used solely by the IWS base application and the audio card diagnostics for the Nortel Networks digital audio card for TDM positions only. IP positions do not use this file.

The purpose of the file is to configure the audio card installed in each IWS position. For more information on the configuration of the audio card, refer to the *TOPS IWS Audio Card Configuration and Diagnostics*, 297-2251-202.

7.5 MPXPARM.INI

Use the IWS provisioning tool to datafill this file. The MPXPARM.INI file resides in the standard Windows directory, C:\WINDOWS. The MPXPARM.INI file is used by applications that comply with the IWS base API and that are used to provide various IWS

parameters for display or application use during execution. All parameters in this file are used equally for both TDM and IP positions.

7.5.1 Currency Section

The parameters in the Currency section are used by IWS API-compliant applications for formatting and displaying currency information on the IWS position.

- **SymbolPlacement** parameter: Enter “0” to display the monetary symbol prior to the currency digit string. Enter “1” to display the monetary symbol after the currency digit string. The default value is “0.”
- **SeparatorPlacement** parameter: Enter an integer between 0–3 to set the number of digits that display to the right of the monetary separator. The default is “2.”
- **Separator** parameter: Enter one character to designate the symbol that separates monetary units. The default value is a decimal point (.).
- **Symbol** parameter: Enter up to 5 characters to designate the symbol that identifies the monetary unit. The default value is a dollar sign (\$). Enter the Euro currency symbol by pressing 0128 while holding down the Alt key. Depending on the font in use, you may see a bar or box instead of the Euro font.

7.5.2 NumberFormatting Section

The parameter in the NumberFormatting section is used by IWS API-compliant applications to put a number formatting character in the directory and calling card numbers.

Separator parameter: Enter one character that will format directory and calling card numbers. The default value is a dash (-).

7.5.3 ChargeAdjustIndicators Section

The parameters in the Charge Adjust Indicators section are used by IWS API-compliant applications for operator input and position display of charge adjust information that includes a charge adjust indicator value.

- **Minutes** parameter: Enter any single UPPERCASE ASCII value between A–Z to indicate that the adjustment on the call is in terms of time. The default value is “M.”
- **Money** parameter: Enter any single UPPERCASE ASCII value between A–Z to indicate that the adjustment on the call is in terms of money. The default value is “C.”
- **Occurrences** parameter: Enter any single UPPERCASE ASCII value between A–Z to indicate that the operator is allowed to give credit for more than one call. The default value is “T.”

7.5.4 Translation Section

The parameters in the Translation section were used by IWS API-compliant applications to determine if any characters require translation before being sent to the DMS switch.

As of IWS release 13.0, the Translation section is no longer used unless the TOPS software load in the DMS switch is earlier than TOPS13. When used with DMS switch software from TOPS13 on, these characters are not translated, because TOPS13 supports the use of international characters in the calling name, called name, and memo fields.

Before the TOPS13 release, TOPS software did not support 8-bit ANSI characters. Characters above ASCII value 127 (those represented by a hexadecimal value greater than hex 7F) had to be encoded by IWS software before being sent to the DMS switch. The Translation section was used to indicate whether there were characters in the user's alphabet that required translation before being sent to the switch. The TOPS switch software accepted translated characters from three fields (calling name, called name, and memo) in the service assistant, in-charge, and MSA windows.

CharTranslate parameter: Enter a "0" to specify not to use the character translator. Enter a "1" to specify that translation should be used. The default value is "0." This parameter no longer indicates which font to use, as it did in earlier releases. Instead, when both the DMS switch software and the IWS software are at release 13 or higher, the system automatically detects the correct font by identifying the designated code page for the current version of Microsoft Windows installed on the position.

Table 57 shows the Windows code pages for the non-Latin 1 character sets compatible with IWS release 15.0

Windows code page identifier	Corresponding IWS font	Supported languages
CP1250	IWSWinLatin2Fixed (formerly MPXIntlFixedFont)	Albanian, Croatian, Czech, Faeroese, Hungarian, Polish, Romanian, Serbian, Slovak, Slovene
CP1251	IWSWinCyrillicFixed	Belorussian, Bulgarian, Russian, Ukrainian
CP1252	IWSWinLatin1Fixed (formerly MPXFixedFont)	Afrikaans, Basque, Catalan, Danish, Dutch, English, Finnish, French, German, Icelandic, Indonesian, Italian, Norwegian, Portuguese, Spanish, Swedish
CP1253	IWSWinGreekFixed	Greek
CP1254	IWSWinTurkishFixed	Turkish
CP1255	IWSWinHebrewFixed	Hebrew
CP1256	IWSWinArabicFixed	Arabic, Farsi
XP1257	IWSWinBalticFixed	Estonian, Latvian, Lithuanian
<i>Note:</i> This list of languages is not exhaustive. All of the code pages support English, and they may also support other languages not listed.		

TABLE 57. International character sets

Note: These non-Latin 1 fonts are only supported in the 640 x 480 screen resolution.

7.5.5 Timeout Section

The Timeout section of MPXPARM.INI provides a Make Busy/Withhold Calls Timeout value which specifies the amount of time, in seconds, that an operator will remain in a Make Busy or Calls Withheld state. When the operator transitions into the Make Busy state, or the Calls Withheld state, they will be returned to the Accept All Calls state after the time-out period specified in this parameter expires. Valid values for the Make Busy/Withhold Calls Timeout parameter are 0 - 999, excluding 1-5. The desired value is specified in the *AppTimeoutvalue* parameter of the *Timeout* section.

7.5.6 Colorblind Support

IWS API compliant applications use the Colorblind section to provide support for colorblind or partially colorblind operators. This section provides the user with a select parameter for this function. When colorblind support is selected, the colorblind mode enable softkey appears in the Assigned Activities screen. This softkey, which is a toggle key, serves to alternately enable and disable IWS colorblind mode.

The Colorblind section also provides colorblind normal, error, and alert text colors that are user-definable. The colorblind text colors are defined using industry standard Red-Green-Blue (RGB) notation. When the position is in colorblind mode, compliant applications display these text colors instead of the predefined IWS text colors. The default colorblind text colors are black for normal text, light grey for error text, and light grey for alert text. It is recommended that the colorblind normal text color be left as black, and it is recommended that the error and alert text colors not be set to the same color as the normal text color. For more information about setting colorblind text colors, see the *TOPS IWS RAMP and Provisioning User's Guide*.

Also, when colorblind mode is enabled, compliant applications may flash error and alert text.

Each of the section parameters and the default settings provided are stated and explained below.

[*Colorblind*] The colorblind support section title.

Select=0 IWS colorblind support select. When *Select* is set to the value of "1," IWS colorblind support is provided. When *Select* is set to the value of "0," IWS colorblind support is not provided. The default value is "0" as shown here.

ColorblindNormalR=0 The Red value for the colorblind normal text RGB setting. The default value is "0" as shown here.

ColorblindNormalG=0 The Green value for the colorblind normal text RGB setting. The default value is "0" as shown here.

ColorblindNormalB=0 The Blue value for the colorblind normal text RGB setting. The default value is "0" as shown here.

ColorblindErrorR=160 The Red value for the colorblind error text RGB setting. The default value is “160” as shown here.

ColorblindErrorG=160 The Green value for the colorblind error text RGB setting. The default value is “160” as shown here.

ColorblindErrorB=160 The Blue value for the colorblind error text RGB setting. The default value is “160” as shown here.

ColorblindAlertR=160 The Red value for the colorblind error text RGB setting. The default value is “160” as shown here.

ColorblindAlertG=160 The Green value for the colorblind error text RGB setting. The default value is “160” as shown here.

ColorblindAlertB=160 The Blue value for the colorblind error text RGB setting. The default value is “160” as shown here.

7.5.7 Text Flash

IWS API compliant applications use the Text Flash section to provide error and alert text flashing. Text flashing is automatically activated when the user enables the IWS colorblind mode. However, the user can activate text flashing in the non-colorblind mode by using the Text Flash section. When text flashing is enabled, some error and alert text flash. For more information about enabling text flashing, see the *TOPS IWS RAMP and Provisioning User's Guide*.

The section parameter and the default setting provided is stated and explained below.

[*TextFlash*] The text flashing section title.

Enable=0 IWS text flashing enable. When *Enable* is set to the value of “1,” IWS text flashing is provided. When *Enable* is set to the value of “0,” text flashing is not provided unless in colorblind mode. The default value is “0” as shown here.

7.5.8 Clock/Call Timer Display

The Clock section is for determining whether or not to display a local time clock and/or a call timer which indicates time used in processing a call. When displayed, the clock and call timer are in the time field of MSA. Refer to *IWS Base HMI Application Guide* for details on the time field in MSA.

The section parameters and the default settings are explained below.

[*Clock*] The Clock section title.

ClockDisplay=0, which is the default value that indicates no display of clock. The value “1” indicates display of clock.

CallTimerDisplay=0, which is the default value that indicates no display of call timer. The value “1” indicates display of call timer.

AdjustTime=0, which is the default value. This parameter is for adjusting the time according to the time zone change for the clock. The range of value is +/- 12 hours.

7.5.9 Trunk Group/SPID Display

The Trunk Group/SPID Display section allows control of the following at call arrival at an operator position:

- Simultaneous display of trunk group and SPID or a display of either one in IWS Billing (previously NTOA) application.
- Location to display trunk group and SPID (based on priority setting) in the IWS Billing (previously NTOA) application. Either display can be in one of these locations: priority 1 field in the Call Headlines window; priority 2 field in the Call Details window.
- A choice of display of trunk group or SPID in NTDA application. This is based on the datafilled priority of display.

The section parameters and the default settings are explained below.

[*TrunkGroupSPID*] The Trunk group/SPID section title.

The parameter *DisplayBoth* is for indicating to the IWS whether both the trunk group and SPID are to be displayed at call arrival. Settings for *DisplayBoth* are:

- *DisplayBoth=0* is equivalent to “OFF” which is the default. The application ignores the “Priority” parameter (see below) when *DisplayBoth* is “OFF.” *DisplayBoth=1* is equivalent to “ON.” The value in the “Priority” parameter is used by the application.
- When *DisplayBoth* has an incorrect or no value, the application uses the default value “0.”

The parameter *Priority* is for indicating to the IWS whether trunk group or SPID has higher display priority when *DisplayBoth* is “ON”. Settings for *Priority* are:

- *Priority=1* is equivalent to “display trunk group” which is the default.
- *Priority=2* is equivalent to “display SPID.”
- When *Priority* has an incorrect or no value, the application uses the default value “1.”

7.5.10 MPXPARM.INI Example

The sample file below illustrates the format of file MPXPARM.INI. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this file must be pertinent to the particular site.

```
;The MPXPARM.INI file contains various IWS parameters that may
;be defined and used by the API-compliant applications that
;reside on the IWS platform.
;
;Currency Section
;=====
;
;The items in the Currency section are used in formatting
;and displaying currency information to the position's
;screen. Each of the parameters and their default settings
```

```
;are discussed below.
;
; [Currency]      Title of the Currency section.
;
; SymbolPlacement=
;   Default Value:0
;   Valid Values: 0, 1
;   Description: The symbol placement parameter allows the
;               monetary symbol to be displayed prior to
;               or after the currency digit string. It is an
;               integer value.
;   Effects:     Value 0 causes the monetary symbol to be
;               displayed prior to the currency digit string.
;               Value 1 causes the monetary symbol to be
;               displayed after the currency digit string.
;
; SeparatorPlacement=
;   Default Value: 2
;   Valid Values: 0, 1, 2, 3
;   Description: The separator placement parameter is used to
;               determine the many digits to be displayed to the
;               right of the monetary
;               separator. It is an integer value.
;   Effects:     The number specified (0-3) will cause that
;               number of digits to be displayed to the
;               right of the monetary separator.
;   Comments:    The value specified in this field must be
;               coordinated with DMS datafill.
;
; Separator=
;   Default Value: . (the decimal point)
;   Valid Values: any single character
;   Description: The monetary separator is used to separate
;               monetary units. It is a one character string.
;   Effects:     The character specified will be displayed with
;               the currency
;               digit string to separate the monetary units.
;
; Symbol=
;   Default Value: $
;   Valid Values: any valid character
;   Description: The monetary symbol is used to identify the
;               monetary unit used for display. It is a string
;               that may be up to five (5)
;               characters in length. (Note: To enter the
;               "Euro" currency symbol on a keyboard that does
;               not have a Euro key, press 0128 while holding
;               down the Alt key. Depending on the
;               current font, a Euro character may or may not
;               be echoed though, e.g. a bold vertical
;               bar or a solid black box may be echoed.)
;   Effects:     The characters specified will be displayed
;               with the currency
;               digit string to identify the monetary unit.
;
;Number Format
;=====
;
;The Number Formatting section is used by IWS API compliant
;applications to put a number formatting character in the
;directory and calling card numbers. The
;parameter and default settings are explained below.
;
; [NumberFormatting] Title of the Number Format section.
;
```

```

; Separator=
;   Default Value: - (the dash character)
;   Valid Values: any valid character
;   Description:   The number format separator is a character
;                 used to format directory and calling card
;                 numbers in the IWS displays.
;   Effects:      The character specified will be displayed with
;                 directory and calling card numbers to separate
;                 sections of the
;                 numbers for formatting purposes.
;
;Charge Adjust Indicator Section
;=====
;
;The Charge Adjust Indicator section is used by IWS API compliant
;applications for operator input and position display of the
;charge adjust information which includes a charge adjust
;indicator value. Each of the parameters and their default
;settings are discussed below.
;
; [ChargeAdjustIndicators] Title of the Charge Adjust Indicator
;section.
;
; Minutes=
;   Default Value:M
;   Valid Values: any *uppercase* ASCII character within the
;                 range A to Z.
;   Description:  The charge adjust indicator used when
;                 adjustment for the call should be made in terms
;                 of time.
;   Effects:      The character specified will be displayed
;                 with the charge adjust digits. It indicates the
;                 value displayed as the charge adjust amount
;                 should be interpreted as minutes.
;
; Money=
;   Default Value: C
;   Valid Values: any *uppercase* ASCII character within the
;                 range A to Z.
;   Description:  The charge adjust indicator used when
;                 adjustment for the
;                 call should be made in terms of money.
;   Effects:      The character specified will be displayed
;                 with the charge adjust digits. It indicates the
;                 value displayed as the charge adjust amount
;                 should be interpreted as units of
;                 local currency.
;
; Occurrences=
;   Default Value: T
;   Valid Values: any *uppercase* ASCII character within the
;                 range A to Z.
;   Description:  The charge adjust indicator used when the
;                 operator is allowed to give credit for more than
;                 one call.
;   Effects:      The character specified will be displayed with
;                 the charge adjust digits. It indicates the
;                 value displayed as the charge adjust amount
;                 should be interpreted as the number
;                 of calls to credit.
;
;Character Translation Section
;=====
;
;The character translator section is used by the IWS API compliant

```

```
;applications to determine whether or not there are characters in
;the user's alphabet that require translation before sending them
;to the DMS switch. The characters that require translation are
;those represented by a hexadecimal value of greater
;than hex 7F.
;
;This option also determines which Fixed font to use for the
;Message/Status Area, and SA/IC windows. The two fonts which are
;installed are MPXIntlFixedFont; and WSWinLatinlFixed (formerly
;MPXFixedFont).
;
; [Translation]          Title of the Character Translation Section.
;
; CharTranslate=
;   Default Value: 0
;   Valid Values:  0, 1
;   Description:    Specifies whether or not character
;                   translation is to be used.
;   Effects:       Value 0 causes character translation to not
;                   be used. Also, this value causes the
;                   IWSWinLatinlFixed (formerly called
;                   MPXFixedFont) to be used.
;
;                   Value 1 causes character translation to be
;                   used. Also, this
;                   value causes the MPXIntlFixedFont to be used.
;
;Make Busy/Withhold Calls Timeout
;=====
;
;The Make Busy/Withhold Calls Timeout section provides a Make
;Busy/Withhold
;Calls timeout value which specifies the amount of time, in
;seconds, that an operator will remain in a Make Busy or Calls
;Withheld state.
;
; [TIMEOUT]            Title of the Make Busy/Withhold Calls Timeout
;                       section.
;
; AppTimeoutvalue=
;   Default Value: 0
;   Valid Values:  all values from 0 - 999, *excluding* values
;                   1-5.
;   Description:    This parameter specifies the amount of time,
;                   in seconds, that an operator will remain in a
;                   Make Busy or Calls Withheld state.
;   Effects:       Value 0 disables the timer. This value
;                   allows the operator to remain in the Make Busy
;                   or Calls Withheld state in an
;                   indefinite amount of time.
;                   Values in the range 1-5 are interpreted as
;                   value 0, and cause the timer to be disabled.
;                   Values in the range 6-999 cause the timer to
;                   expire in the number of seconds equal to the;
;                   value of the number specified. When the timer
;                   expires, the operator will automatically be
;                   returned from the Make Busy or Calls
;                   Withheld state to the Accept All Calls state.
;
;Colorblind section
;=====
;
;The Colorblind section is used to determine whether or not IWS
;colorblind support is selected. This section also contains the
;datafillable values for the colorblind text colors. These values
```

```

;for colorblind normal, error, and alert text colors are specified
;in industry standard RGB (Red, Green, Blue) values.
;
; [Colorblind]      Title of the Colorblind section.
;
; Select=
;   Default Value:  0
;   Valid Values:   0 or 1.
;   Description:    IWS colorblind support select.
;   Effects:        1 indicates colorblind support is selected.
;                   0 indicates colorblind support is
;                   deselected.
;
; ColorblindNormalR=
; ColorblindNormalG=
; ColorblindNormalB=
;   Default Value:  0 for all three values which yields a black
;                   text color.
;   Valid Values:   All three values range from 0 - 255.
;   Description:    IWS colorblind normal text color.
;   Effects:        The combination of RGB values determines the
;                   colorblind normal text color.
;
; ColorblindErrorR=
; ColorblindErrorG=
; ColorblindErrorB=
;   Default Value:  160 for all three values which yields a grey
;                   text color.
;   Valid Values:   All three values range from 0 - 255.
;   Description:    IWS colorblind error text color.
;   Effects:        The combination of RGB values determines the
;                   colorblind error text color.
;
; ColorblindAlertR=
; ColorblindAlertG=
; ColorblindAlertB=
;   Default Value:  160 for all three values which yields a grey
;                   text color.
;   Valid Values:   All three values range from 0 - 255.
;   Description:    IWS colorblind alert text color.
;   Effects:        The combination of RGB values determines the
;                   colorblind alert text color.
;
;TextFlash Section
;=====
;
;The TextFlash section is used to determine whether or not text
flashing
;is done for some error and alert strings.
;
; [TextFlash]      Title of the TextFlash section.
;
; Enable=
;   Default Value:  0
;   Valid Values:   0 or 1.
;   Description:    IWS text flashing enable.
;   Effects:        1 indicates text flashing is enabled.
;                   0 indicates text flashing is disabled unless
;                   in colorblind mode.
;
;Simultaneous Display of Trunk Group and SPID Section
;=====
;
;The TrunkGroupSPID section is used to determine whether or not
;both the Trunk Group and the SPID will be displayed at the IWS.

```

```
;In addition, this section identifies the priority of the two
;displays to determine screen location of the displays.
;
; [TrunkGroupSPID]Title of the TrunkGroupSPID section.
;
; DisplayBoth=
;   Default Value: 0
;   Valid Values:  0 or 1.
;   Description:   Trunk Group/SPID information available
;   Effects:       0 indicates that only one of Trunk Group or
;                  SPID will be available to the IWS.
;                  1 indicates that both the Trunk Group and
;                  SPID will be available to the IWS.
;
; Priority=
;   Default Value: 1
;   Valid Values:  1 or 2.
;   Description:   Determines which display has priority for
;                  display
;                  1 indicates that the Trunk Group display has
;                  priority.
;                  2 indicates that the SPID display has priority.
;
;Clock Section
;=====
;
;The Clock section is used to determine whether or not a
;customizable Clock and a Call Timer is displayed in the MSA Time
;Field of the IWS position.
;This section also contains the datafillable values for the time
;zone adjustment.
;
; [Clock]           Title of the Clock section.
;
; ClockDisplay=
;   Default Value: 0
;   Valid Values:  0 or 1.
;   Description:   IWS Clock display.
;   Effects:       1 indicates the IWS Clock is displayed.
;                  0 indicates the IWS Clock is not displayed.
;
; CallTimerDisplay=
;   Default Value: 0
;   Valid Values:  0 or 1.
;   Description:   IWS Call Timer display.
;   Effects:       1 indicates the Call Timer is displayed.
;                  0 indicates the Call Timer is not displayed.
;
; AdjustTime=
;   Default Value: 0
;   Valid Values:  , -n, or n, the maximum range of n is +/- 12
;                  hours.
;   Description:   Time zone adjustment amount.
;   Effects:       0 indicates no time zone adjustment is
;                  needed.
;                  -n indicates the position time is adjusted for -
;                  n hour to the switch time.
;                  n indicates the position time is adjusted
;                  for n hour to the switch time.
;
;[Currency]
SymbolPlacement=0
SeparatorPlacement=2
Symbol=$
Separator=.
```

```

[NumberFormatting]
Separator=-

[ChargeAdjustIndicators]
Minutes=M
Money=C
Occurrences=T

[Translation]
CharTranslate=0

[TIMEOUT]
AppTimeoutvalue=0

[Colorblind]
Select=0
ColorblindNormalR=0
ColorblindNormalG=0
ColorblindNormalB=0
ColorblindErrorR=160
ColorblindErrorG=160
ColorblindErrorB=160
ColorblindAlertR=160
ColorblindAlertG=160
ColorblindAlertB=160

[TextFlash]
Enable=0

[TrunkGroupSPID]
DisplayBoth=0
Priority=1

[Clock]
ClockDisplay=0
CallTimerDisplay=0
AdjustTime=0

```

7.6 MPXTOP.INI

Use the IWS provisioning tool to datafill this file for the IWS Billing application. Use NTDA Setup to datafill this file for the NTDA application. File MPXTOP.INI resides in the standard Windows directory, C:\WINDOWS. The NTDA and IWS Billing (previously NTOA) applications use MPXTOP.INI to provide various parameters for use during execution. All parameters in this file are used equally for both TDM and IP positions.

7.6.1 Services

The [services] section contains a line for each application that uses MPXTOP.INI. This line is a concatenation of several pieces of information:

ServiceNumber=PrimaryIP,PrimaryPort,PrimaryProtocol;ScndIP,ScndPort,ScndProtocol

- The Service Number specifies the application for which the following parameters are to be used.
- The Primary and Secondary IP Addresses specify the IP address to the DA and CCDB servers (see Figure 118). The valid range is 0 to 255.255.255.255.

- The Primary and Secondary Ports specify the numbers on the Primary and Secondary servers. The valid range is 0 to 9999. The *NTDA* default is 400, and the *NTOA* default is 9000.
- The Primary and Secondary Protocol specify which protocol to use. *NTOA* default is 3.

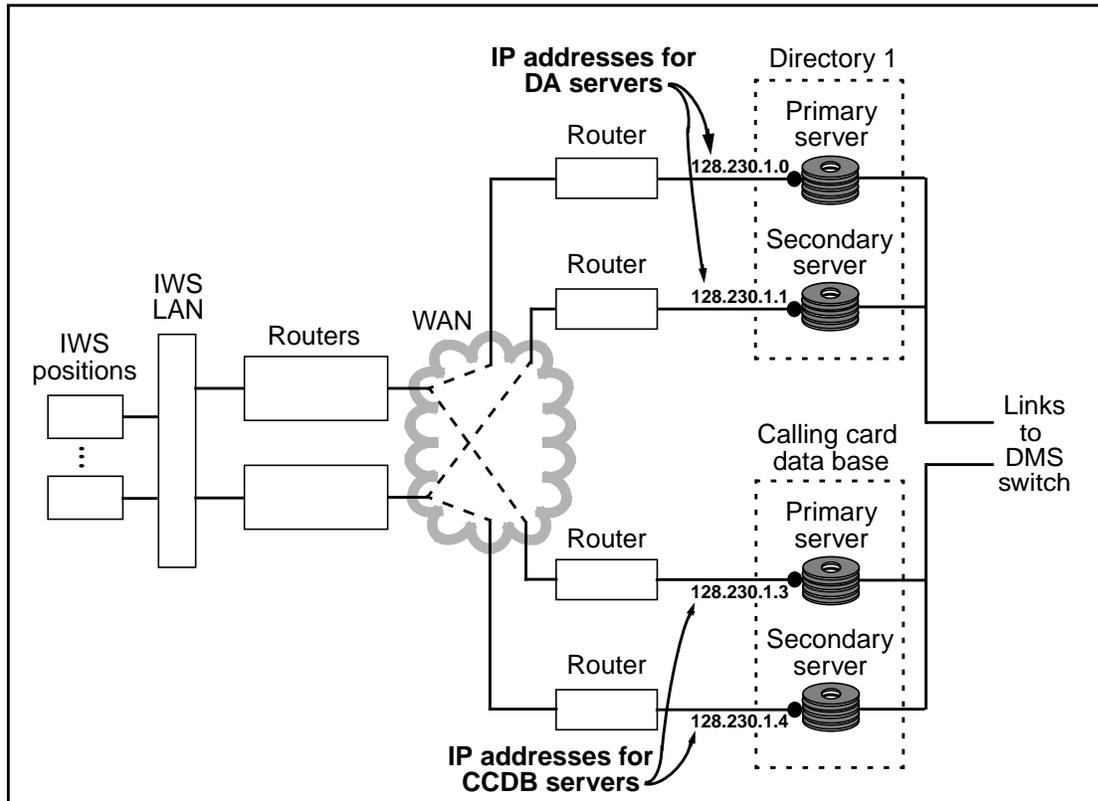


FIGURE 118. IP Addresses for External DA and CCDB Servers

7.6.2 MPXTOP.INI Example

The sample file below illustrates the format of file MPXTOP.INI. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this file must be pertinent to the particular site. Note that in file MPXTOP.INI, the IWS Billing (previously NTOA) application is still referred to as the NTOA application.

```
;The MPXTOP.INI file contains various Parameters
;that may be defined and used by the NTDA Application
;and the NTOA Application.
;
; ** No parameters may be left blank **
; ** Parameters must be separated by a ',' or ';' **
;
;EXAMPLE
; 14=47.32.64.4,400,3;47.32.64.10,400,3
; 16=47.24.195.20,9000,3;47.24.195.80,9000,3
;
;SerNum=PrimIP,PrimPort,PrimProto;ScndIP,ScndPort,ScndProto
```

```
;
;Service Number
;=====
;
;This value is constant:
;  Fourteen (14) is the service number for the NTDA Application
;  Sixteen (16) is the service number for the NTOA Application.
;
;Primary IP Address
;=====
;
;This value is the primary IP address to the database server.
;It must be between the range of 0 and 255.255.255.255.
;
;Primary Port Number
;=====
;
;The number of the primary server.
;  The Default value for the NTDA Application is 400.
;  The Default value for the NTOA Application is 9000.
;
;Primary Protocol Type
;=====
;
;This value is constant. The protocol type is always
;three (3) for the NTDA Application and the NTOA Application.
;
;Secondary IP Address
;=====
;
;This value is the secondary IP address to the database server.
;It must be between the range of 0 and 255.255.255.255.
;
;Secondary Port Number
;=====
;
;The number of the secondary server.
;  The Default value for the NTDA Application is 400.
;  The Default value for the NTOA Application is 9000.
;
;Secondary Protocol Type
;=====
;
;This value is constant. The protocol type is always
;three (3) for the NTDA Application and the NTOA Application.
;
[services]
14=0.0.0.0,400,3;0.0.0.0,400,3
16=0.0.0.0,9000,3;0.0.0.0,9000,3
```

7.7 SCRPTINI.INI

Use the IWS provisioning tool to datafill this file. All parameters in the SCRPTINI.INI file apply to both TDM and IP positions. The SCRPTINI.INI file is used by both IWS standard scripting and enhanced scripting. Refer to the *IWS Base HMI Application Guide* for detailed information on IWS scripting and the SCRPTINI.INI file.

An application name precedes each section in this file. It is the tag for the application that displays the Scripting Window. Refer to application documentation for the application tag. The length of the application tag string (application name) must not exceed eight characters. The following application names are currently used in this field:

- NTDA
- NTOA

Note: The NTOA application is now called the IWS Billing application. In file SCRPTINI.INI, IWS Billing is still referred to as NTOA.

As of IWS 17.1 Enhanced Scripting, supported by both NTOA and NTDA, is available and provides more flexibility in determining which script is displayed. Refer to the *IWS Base HMI Application Guide* for more information on Enhanced Scripting.

The following fields are applicable to NTOA and NTDA sections in this file.

Enable=<x> The Enable entry specifies whether or not the Scripting Window should be displayed automatically by the application. It is an integer value. The range for this parameter is 0 to 1. If 0, the Scripting Window is disabled and will not be displayed automatically by the application. If 1, the Scripting Window is enabled. The default value is 0.

XPos=<x> The XPos entry specifies the x-coordinate of the upper left corner of the Scripting Window. It is an integer value. The default value is 370.

YPos=<x> The YPos entry specifies the y-coordinate of the upper left corner of the Scripting Window relative to the lower boundary of the Message/Status Area. It is an integer value. The default value is 23.

Width=<x> The Width entry specifies the size of the Scripting Window along the x-axis. It is an integer value. The default value is 250.

Height=<x> The Height entry specifies the size of the Scripting Window along the y-axis. It is an integer value. The default value is 350.

SPIDPriority=<x> The SPIDPriority entry specifies the priority level in the scripting hierarchies of SPID (Service Provider ID). The range of values is 1 to 4 (default is 2) for NTOA application, and 1 to 3 (default is 1) for NTDA application.

CT4QPriority=<x> The CT4QPriority entry specifies the priority level in the scripting hierarchies of Call Type for Queuing. The range of values is 1 to 4 (default is 3) for NTOA application, and 1 to 3 (default is 2) for NTDA application.

COPriority=<x> The COPriority entry specifies the priority level in the scripting hierarchies of Call Origination. The range of values is 1 to 4 (default is 4) for NTOA application, and 1 to 3 (default is 3) for NTDA application.

With enhanced scripting enabled, the following fields are also applicable to NTOA and NTDA:

EnhScrEnable=<e> The *EnhScrEnable* entry specifies whether or not to enable enhanced scripting, Set to 1 to enable enhanced scripting or 0 to disable it. Default value is 0.

NoMatchLogs=<n> The *NoMatchLogs* entry specifies whether or not to enable the logs that will be generated every time a script can not be found for a call. Set to 1 to enable logs. Set to 0 to disable these logs. Default value is 0.

DebugDatafill=<d> The *DebugDatafill* entry specifies whether or not to use debugging datafill. Set this parameter to 1 when requiring debugging scripting datafill. Set to 0 for normal call handling. This parameter is very useful when trying to understand why some calls are not producing the desired script. Message windows will pop up during IWS initialization and call handling giving the technician useful scripting datafill information. The default value is 0.

RulesFile=<r> The *RulesFile* entry specifies the enhanced scripting rules file. This file can take two forms. The file can be in the form of a standard IWS table file. An example table file is provided, "xscrules.tbl". The file can also be in the form of a Microsoft Excel tab delimited text file. For instructions on how to produce this Excel file, see IWS Enhanced Scripting documentation.

ScriptsFile=<s> The *Scripts File* entry specifies the enhanced scripting scripts file. This file can take two forms. The file can be in the form of a standard IWS '.scr' file. An example table file is provided, "scrptscr.scr". The file can also be in the form of a Microsoft Excel tab delimited text file. For instructions on how to produce this Excel file, see IWS Enhanced Scripting documentation.

The following fields are applicable only to NTOA section in this file.

GiveScriptFocusOnArrival=<x> The *GiveScriptFocusOnArrival* entry controls whether the script window automatically gets focus at call arrival, or whether the appropriate Billing Application field gets focus. (For example, on a 0- call, the CLD field normally gets focus, and on a 0+ call, the SPL field normally gets focus.) The range of values is 0 to 1. The value 0 is used to disable this feature, and the value 1 is used to enable this feature. The default is 0.

RCPriority=<x> The *RCPriority* entry specifies the priority level in the scripting hierarchies of Reason Code. The range of values is 1 to 4. The default is 1.

7.7.1 SCRPTINI.INI Example

The sample file below illustrates the format of file SCRPTINI.INI. This sample serves only as an example. It does not purposely contain actual site-specific data. Any actual data used in this file must be pertinent to the particular site.

```
; -----  
;SCRPTINI
```

```
;The preceding line is used by ProvTool, DO NOT REMOVE!
;+
;-----
;: SCRIPTINI.INI
;-----
;
;
; Description:
;-----
;   Scripting Initialization File
;
;   This .ini file is used for Scripting setup.
;
;
; Enhanced scripting provides more flexibility in determining which
; script gets displayed. Not all applications may support enhanced
; scripting. See appropriate application documentation to see if an
; application supports enhanced scripting. Both Nortel Networks
; NTOA and NTDA applications support enhanced scripting. Enhanced
; scripting is configured by the following datafill:
;
; [EnhancedScripting]
; EnhScrEnable=e
; NoMatchLogs=n
; DebugDatafill=d
; DisplayUndefinedScript=d
; RulesFile=r
; ScriptsFile=s
;
; An explanation of the entries is as follows;
;
; EnhScrEnable: Set to 1 to enable enhanced scripting, 0 to disable
; enhanced scripting. The default value is 0.
; NoMatchLogs: Set to 1 to enable an IWS log that will be generated
; when a matching script can not be found for a call. Set to 0 to
; disable this log. The default value is 0.
; DebugDatafill: Only set this parameter to 1 when debugging
; scripting datafill. Set to 0 for normal call handling. This
; parameter is very useful when trying to understand why some
; calls are not producing the desired script. When enabled,
; all pertinent call parameters are prepended to the script
; message giving the technician very useful debug information.
; The default value is 0.
; DisplayUndefinedScript: Set to 1 to display the scripting window
; when the script is undefined. Set to 0 to not display the
; scripting window when the script is undefined.
; The default value is 0.
; RulesFile: Quoted name of the enhanced scripting rules file.
; This file can take two forms. The file can be in the form of
; a standard IWS table file. IWS installation provides an example
; rules file, "xscrules.tbl". The file can also be in the form of
```

```

; a Microsoft Excel tab delimited text file. For instructions on
; how to produce this Excel file, see IWS Enhanced Scripting
; documentation.
; ScriptsFile: Quoted name of the enhanced scripting scripts file.
; This file can take two forms. The file can be in the form of
; a standard IWS '.scr' file. IWS installation provides an example
; scripts file, "scriptscr.scr". The file can also be in the form
; of a Microsoft Excel tab delimited text file. For instructions
; on how to produce this Excel file, see IWS Enhanced Scripting
; documentation.
;
;
;
; For each App using Scripting, a section must exist. The section
; and its entries should be in the following form;
;
; [AppName]
; Enable=e
; XPos=x
; YPos=y
; Width=w
; Height=h
; RCPriority=n          (applicable only to NTOA)
; SPIDPriority=n        (applicable to NTOA/NTDA)
; CT4QPriority=n        (applicable to NTOA/NTDA)
; COPriority=n          (applicable to NTOA/NTDA)
; GiveScrtFocusOnArrival=e (applicable only to NTOA)
;
; The maximum AppName length is eight characters. To determine the
; AppName, see the application's documentation.
;
; An explanation of the entries is as follows;
;
; Enable: 0 to disable Scripting; 1 to enable Scripting
; XPos: x coordinate of upper left corner of Scripting window
;       relative to lower left corner of Message/Status Area.
;       min = 0 ; default = 5
; YPos: y coordinate of upper left corner of Scripting window
;       relative to lower left corner of Message/Status Area.
;       min = 0 ; default = 299
; Width: window size along the x-axis.
;       min = 100 ; default = 356
; Height: window size along the y-axis.
;       min = 100 ; default = 180
;
; Recommended values for XPos, YPos, Width, and Height are as
; follows;
;
; Application  Screen Resolution  Entry  Recommended Value
;-----

```



```
Height=180
RCPriority=1
SPIDPriority=2
CT4QPriority=3
COPriority=4
GiveScrtFocusOnArrival=0
;
;
[NTDA]
Enable=0
XPos=5
YPos=299
Width=356
Height=180
SPIDPriority=1
CT4QPriority=2
COPriority=3
;
;
```

8.0 IWS Position Maintenance

IWS Position maintenance is significantly different depending upon whether the configuration is TDM or IP. The maintenance architecture is described first for the TDM configuration and later for the IP configuration.

8.1 TDM Configuration Gateway/Position Maintenance

IWS maintenance in the TDM configuration has two basic pieces: gateway maintenance and position maintenance. Position maintenance is tightly coupled with the IWS base application and resides on every IWS position. The gateway maintenance application resides only on the DMS gateway positions.

The following diagram logically depicts the IWS maintenance architecture. The diagram does not show the Network connection layers or active/inactive DMS gateway positions.

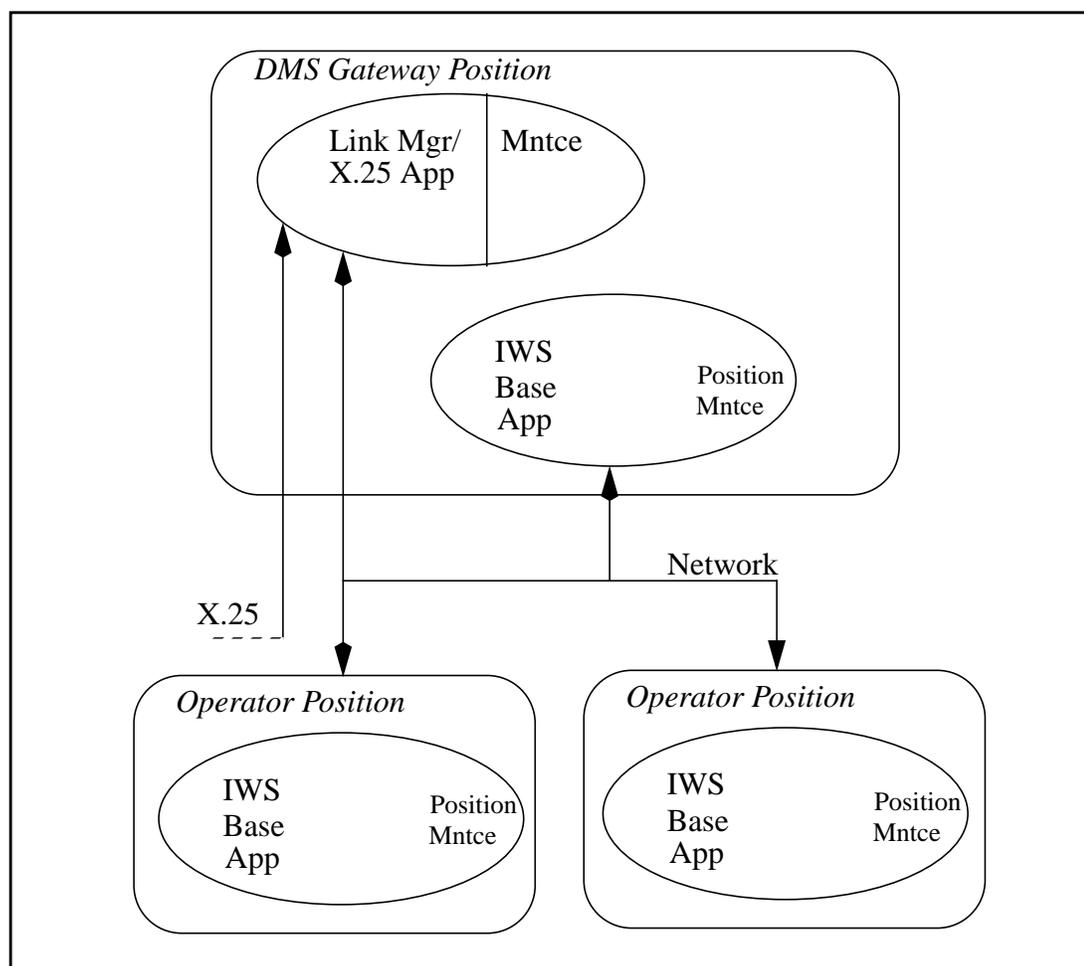


FIGURE 119. Maintenance Architecture

There is at least one DMS gateway per cluster. Normal operation provides for two DMS gateways per cluster. When two DMS gateways are present, one is considered the active

gateway and the other the inactive gateway. The active DMS gateway is the position that provides all the DMS maintenance for the cluster. The inactive DMS gateway will take over the DMS maintenance in the event that the active DMS gateway position is no longer running or the X.25 link is lost.

As for the OPP and OIA messaging, this messaging is shared across both gateways. The active DMS gateway will handle all the DMS maintenance messaging and half of the OPP and OIA messaging, while the inactive DMS gateway will handle half of the OPP and OIA messaging. The network layer uses a loadsharing mechanism to route OPP and OIA data messages to a gateway for messaging to the DMS (or OIA). Loadsharing splits the traffic between the two gateways evenly if both gateways have X.25 connectivity. The loadsharing mechanism is driven by the **MPXNET.INI** datafill for the positions in a cluster. The network layer searches for the configured positions in sequential position order (i.e. position 0 is first, position 1 is next, etc.). The first position configured is marked to use gateway A if available. The next position configured is marked to use gateway B if available. And the sequence continues with every other configured position using the alternate gateway. If position numbers are missing, the sequence continues with the next position number. See Table 58 for an example. (Notice that in this example pos3 is missing).

[Cluster0]	OPP/OIA messaging path with loadsharing
pos0=node0	gtwyA
pos1=node1	gtwyB
pos2=node2	gtwyA
pos4=node4	gtwyB
pos5=node5	gtwyA
gtwyA=node1	
gtwyB=node2	

TABLE 58. Loadsharing Message Paths

Gateway maintenance provides functionality to:

- Establish the active maintenance DMS gateway.
- Update all positions when changes in routing information occurs. This consists of OPP and OIA data routing information.
- Provide a bridge between the X.25 and token ring to allow messages to and from positions for OPP data, OIA data and DMS maintenance messages.

Gateway maintenance is organized into three parts to provide this functionality: the gateway maintenance application, the X.25 application, and the network layer.

These components work in concert to:

- Monitor X.25 link state changes (link up, link down).
- When a link state changes, broadcast routing information changes to all positions. This allows the network layer to control OPP and OIA data routing.

-
- When an X.25 link comes up, determine if it can become the active maintenance link.
 - When an X.25 link becomes the active maintenance, broadcast an activity update to all network layers in all positions.
 - Allow applications in positions to message to the CC (OPP) and (OIA) via the X.25 links.
 - Allow applications in positions to receive OPP and OIA messages.
 - Allow the gateway maintenance to send messages to DMS maintenance.
 - Allow the gateway maintenance to receive messages from DMS maintenance.

The first four bullets in the above list describe the link management portion of IWS Link Manager feature. The chain of events is listed in the order in which they typically occur. For example, an X.25 link comes up, the DMS gateway controlling the link arbitrates with the other DMS gateway to determine whether this link can become active. If it can, an activity update is broadcast to all network layers. Once the network layers are updated, the applications can message to the CC or OIA over this newly active X.25 link.

The network layer is implemented as a Windows DLL. So when the Route Update information is sent to the network layer, both the IWS base application used to send OPP messages and the IWS OIA applications used to send OIA messages are affected.

8.1.1 Gateway Maintenance

Gateway maintenance is a Windows application. The active gateway maintenance application interacts with the position maintenance on all positions in the cluster and the inactive gateway maintenance application. All interaction is through the network layer.

Gateway maintenance has the following responsibilities:

- Enforce sanity on the cluster when the gateway maintenance application is initialized. Sanity is maintained by the gateway maintenance by forcing each position which responds to a maintenance heartbeat request into a Busy state. Gateway maintenance also sends an Unsolicited RTS request to DMS maintenance on behalf of each active position.
- Produce maintenance heartbeat requests to all configured positions in a round robin fashion. A 0.25 second delay is used between all requests. If a response is not received before the next request is to be issued, increment the missed heartbeat response value for the appropriate position. Notify DMS when position failure occurs via an Unsolicited Busy. Three consecutive maintenance heartbeat responses must be missed from a position before any action is taken. Therefore, up to a 15 second delay exists (on a 20 position cluster) to detect a down position.
- Receive maintenance heartbeat responses from position maintenance. Mark position as active if necessary.

-
- Process gateway maintenance requests from the DMS. Request types processed are:
 - Busy. A Gateway Busy request results in all positions in the cluster receiving the Busy request and a single response to the DMS for all affected positions.
 - Return to Service. This results in only the gateway maintenance returning to service. This has no effect on position maintenance in any position.
 - Route position maintenance requests to the appropriate destination if appropriate. Or respond immediately to DMS if gateway is not In Service or position is down.
 - Route position maintenance responses to the DMS. Response information is cached for later use by the gateway maintenance.
 - Send an acknowledge of a position maintenance response receipt to position maintenance.
 - Forward appropriate information to inactive gateway maintenance.
 - Process switch to active/inactive gateway maintenance.
 - Route position diagnostic requests to the appropriate destination if appropriate. Or respond immediately to DMS if gateway is not In Service or position is down.
 - Route position diagnostic responses to the DMS.

Gateway maintenance is controlled by DMS maintenance and supports both Busy and In Service states. There is no case where gateway maintenance returns a Fail to either gateway RTS or Gateway Busy requests. If the position running as a gateway is not powered up or there are X.25 connection problems, the DMS will time out during maintenance requests. When the gateway maintenance is set Busy, it automatically sets all subtending positions to Busy. The response and result values returned are:

- Response OK
 - The Result field value is not valid.

Gateway maintenance monitors position maintenance requests from the DMS and either responds immediately or forwards the maintenance request to the position. Gateway maintenance will respond immediately if the gateway itself is not In Service or if no heartbeat responses have been received from the position. The exception to this case is if the position maintenance request is to Busy the position and no heartbeat responses have been received, gateway maintenance will respond successfully to the DMS request. Gateway maintenance's response and result values returned are:

- Response OK
 - The Result field value is not valid.
- Response Fail, position fails maintenance request

-
- Result value 150: Gateway Not In Service.
 - Result value 151: Position Inactive, No HeartBeat from Position.

There are three cases when the gateway sends an Unsolicited RTS to the DMS.

- a. When a position starts sending heartbeat responses, it is recognized as a valid position and the gateway sends an Unsolicited RTS to the DMS on the position's behalf. If heartbeat responses are stopped long enough for the gateway to declare the position down, the RTS is sent again when the heartbeat responses are reestablished.
- b. If an Unsolicited RTS is outstanding to the DMS and a position Busy is received, the Busy is processed normally and the Unsolicited RTS is retried after the Busy response is sent.
- c. Position maintenance such as file transfer has completed.

There are three cases when the gateway sends an Unsolicited Busy to the DMS.

- a. If three consecutive heartbeat responses are missed from a position, the position is declared dead. An Unsolicited Busy is sent to the DMS with the following result value:
 - Result value 151: Position Inactive, No HeartBeat from Position.
- b. If key messages are missed from position maintenance to the gateway maintenance, a state mismatch can occur between the two applications. The gateway maintenance aligns with position maintenance if this mismatch occurs. Therefore, when the gateway maintenance considers a position In Service but the position is Busy, the gateway sends an Unsolicited Busy to the DMS to inform the DMS of the change in position state.
 - Result value 155: Gateway/Position state mismatch.
- c. When RAMP has initiated file transfer or restart (reboot) to a position, the position will send an Unsolicited Busy to the DMS.
 - Result value 156: Position maintenance in progress.

Gateway maintenance monitors position diagnostic requests from the DMS and either responds immediately or forwards the diagnostic request to the position. No actual diagnostic functionality currently exists in the positions. The responses are based simply on the current state of the position. Gateway maintenance will respond immediately if the gateway itself is not In Service or if no heartbeat responses have been received from the position. Gateway maintenance's response and result values returned are:

- Response Fail, Position fails Diagnostic test
 - Result value 150: Gateway Not In Service.
 - Result value 151: Position Inactive, No HeartBeat from Position.

Gateway maintenance also reports an IWS application's external link status to the DMS through the maintenance interface. When an application's external link changes state, this

information is sent to the DMS by the active IWS DMS Gateway position only. This is done so there is not an overflow of the messages from the different positions on the token ring. In addition, the active gateway will only send the unsolicited message if the position is In-Service. If the position is in the BSY state, the link alarm message will be saved so that it is not lost. Once the position is Returned to Service (RTS), any pending messages indicating that a link status has changed will be sent. The DMS reports when the links go out-of-service by creating PM128 and PM115 Logs. When the links return to service, no logs are created, but the DMS MAP alarms are cleared.

8.1.2 Position Maintenance

The position maintenance is part of the IWS base application. The active gateway maintenance application interacts with the position maintenance on all positions in the cluster. All interaction is through the network layer.

Position maintenance has the following responsibilities:

- Process position maintenance requests. Request types processed are:
 - Return to Service
 - Busy
 - Busy due to voice link failure. Note that this request type is not distinguished from a normal Busy request.
- Process maintenance response acknowledgments from gateway maintenance. If an acknowledgment is not returned, a retry of the response is required. A 1 second timeout is used before the response is retried. Four missed acknowledgments in a row and the position declares a loss of communications with the gateway maintenance. This results in the Busying of the position. The position attempts to send an Unsolicited Busy to DMS maintenance just in case.
- Process position diagnostic requests. Respond appropriately.
- Respond to maintenance heartbeat requests from the gateway maintenance. Heartbeat requests should be received every 5 seconds from the gateway maintenance. If no heartbeat request is received in 30 seconds, assume the gateway is down and take appropriate action to Busy the position if the position is In Service.
- Process requests from the IWS base application for audio card interaction. Requests processed are:
 - Verification of audio card existence
 - Verification of audio clock source existence
 - Audio headset seating check.

Position maintenance is controlled by DMS maintenance and supports both Busy and In Service states. Position maintenance requests are forwarded to the position by the gateway maintenance. The response and result values returned are:

- Response OK
 - The Result field value is not valid.
- Response Fail
 - Result value 152: No Audio Clock Source present.
 - Result value 153: Initialization in Progress.
 - Result value 154: Communications failure between Position and Gateway maintenance.
 - Result value 156: Position maintenance in progress.

Position diagnostic requests are forwarded to the position by the gateway maintenance. No actual diagnostic functionality currently exists in the positions. The responses sent back to the DMS are based on the current state of the position. The position's response and result values returned are:

- Response OK, position passes diagnostic test
 - The Result field value is not valid.
- Response Fail
 - Result value 152: No Audio Clock Source present.
 - Result value 153: Initialization in Progress.

If a full test request, Test Data and Voice Link request type, comes into the position and the position is Not In Service, the position generates a Test Log message in addition to the normal Test response to the DMS. This Test Log includes the cluster Number, position Number, IP Address and position Type of this position. This Log can be used to verify the system cluster and LAN configuration.

Position maintenance also handles the responsibility for administering the NT Digital Audio Card which resides a position. Although the Audio Card administration is not strictly a part of maintenance, functionally this solution works well.

Position maintenance is not a separate Windows application. Position maintenance is a functional area in the IWS base application.

8.1.3 DMS Error Code Datafill

Possible error codes returned from a maintenance request or a diagnostic request are listed in the following table. The recommended text for each code is stated. For proper DMS MAP responses, the DMS Table **MTCFAIL** needs to be datafilled with the maintenance

request error codes. And the DMS Table **MTCTEST** needs to be datafilled with the Diagnostic request error codes.

Error code	Text
150	Gateway Not In Service
151	Position Inactive, No HeartBeat responses from Position
152	No Audio Clock Source present
153	Initialization in Progress
154	Communications failure between Position and Gateway Maintenance
155	Gateway/Position State Mismatch
156	Position Maintenance in progress
<i>Note:</i> Result error codes 157 through 199 are reserved by IWS for future use.	

TABLE 59. IWS Maintenance DMS Error Code Datafill

8.1.3.1 Gateway Maintenance Limitations

If an IWS gateway position loses LAN (token-ring or Ethernet) connectivity but retains X.25 connectivity with the DMS, the isolated gateway position assumes all other positions are down and assumes it is the active gateway. Assuming the remainder of the IWS cluster is still functioning properly, the other gateway will also assume it is the active gateway.

This fault is currently unavoidable.

The result of this fault is confusion in the TMS concerning which DMS maintenance X.25 link to the IWS gateways is currently active. All OPP and OIA messaging continues without problems. The last gateway to send a DMS maintenance message to the TMS, Gateway A in this discussion, will be in control of the X.25 link. The position(s) associated with the other gateway, Gateway B in this discussion, will not respond to the DMS maintenance commands. DMS maintenance commands sent to the gateway or positions will be received by Gateway A in this case and responded to accordingly. Gateway A will consider all positions associated with Gateway B to be inactive and inform DMS maintenance. However, the actual positions will never be made Busy. If the DMS believes a position is Busy, it will ignore all OPP messaging from that position.

8.1.3.2 Router Faults with ICMP Redirect Messages

In a router configuration with ICMP redirect messages turned on, the following condition can occur and cause a lose of database connectivity: If the database side link of the first default gateway router goes down, the router can send an ICMP redirect message to each position on the token ring. The positions will now route database messages to the second default gateway router. If this router is powered off, but the first link that went down becomes active again, the messages will never get sent to the first router again.

This fault is avoidable by turning off the ICMP redirect messages in the routers connected to the IWS token rings.

8.1.3.3 LAN Connection Lost

If the LAN connections for a machine are lost, the machine must be restarted (rebooted) before LAN connectivity can be reestablished by the machine. This is a limitation in the third party software/hardware utilized in the IWS.

8.1.3.4 Quadron T1*N2 Timeout Value Limitations

In the Quadron X.25 parameters, the T1 and N2 values are of particular importance. These two values determine the timeout length required for the Quadron software to inform the IWS about an X.25 link failure. This value must be greater than the corresponding TMS value. The TMS value for T1 x N2 is 4 seconds. The IWS value for T1 x N2 (2 x 3) is 6 seconds.

The IWS X.25 parameter values are greater than the TMS values for the following reason: If the link is lost and recovers in a time that is quick enough for the positions to detect the failure, but too small for the DMS to detect the failure, the DMS will assume the links are up and the positions will think the links are down. In this case, calls could go to the positions but do not get processed.

8.1.3.5 Gateway/Position Maintenance Timeout Values

Table 60 shows various events that causes OPP, OIA, and DMS maintenance messages to be suspended until the messaging activity can resume on the other X.25 link to the DMS. These events are based on two gateway positions per token ring and using a load sharing mechanism. More detail on the load sharing mechanism can be found in section 11.0.

Events	Messages suspended	Elapsed time	Results
Active gateway powered off.	All DMS maintenance messaging. OPP and OIA messaging on half of the positions.	up to 15 sec	Inactive gateway will takeover all maintenance, OPP and OIA messaging for all the positions.
Inactive gateway powered off.	OPP and OIA messaging on half of the positions.	up to 15 sec	Active gateway will takeover all maintenance, OPP and OIA messaging for all the positions.
Operator position powered off.	OPP, DMS maintenance, and OIA messaging for this position.	up to 15 sec	Active gateway will send an unsolicited busy to the DMS for this position.

TABLE 60. Gateway/Position Maintenance Timeout Values

Active gateway loses X.25 connection (DSU powered off or ISG link Busied).	All DMS maintenance messaging. OPP and OIA messaging on half of the positions.	up to 30 sec	Inactive gateway will takeover all maintenance, OPP and OIA messaging for all the positions.
Both gateway positions powered off.	All DMS maintenance messaging. All OPP and OIA messaging for all of the positions.	up to 30 sec	Operator positions will busy themselves.

TABLE 60. Gateway/Position Maintenance Timeout Values

8.2 IP Position Maintenance

Position maintenance for IP positions is much simpler than for TDM positions.

Messaging from the IWS to the DMS is done over the UDP port number datafilled as the DMSPortOut in the MPXNET.INI file. Messaging from the DMS to the IWS is done over the UDP port number datafilled as the DMSPortIn in the MPXNET.INI file. Position datafill determines the UDP ports for communication, the IP Address of the DMS IP Peripheral that the position will communicate with, as well as the DMS position number. Refer to Section 7.0 “Initialization (INI) Files” for information on datafilling the MPXNET.INI and POSINFO.INI files for IP positions.

8.2.1 Inservice and Out of Service Requests

Under the IP position maintenance model, once an IWS IP position has initialized it will start sending Inservice Request messages to the DMS (refer to parameters DMSNode and DMSPortOut in the MPXNET.INI file); this message will contain the IP Address of the IWS position, the port number of the DMSPortIn, and the IWS’s DMS position number.

When the DMS maintenance state for the position number is set to URES or SYSBSY, it will answer the request message with an Inservice Response message indicating success and set the maintenance state to CRES. Once the position is inservice, the operator can log into it to process calls.

The DMS may also send an Inservice Response failure message if there are maintenance issues preventing it from returning the position to service. Most reasons for IP positions not coming into service involve datafill mismatches between the DMS and the position. It is critical that the datafill for the DMSPortOut number match the port number that the DMS expects messages to be coming in on, and that the Position number is datafilled in the DMS. Once a position is inservice the DMS may take the position out of service, when it deems necessary. See NTP 297-8403-906, TOPS-IP Users Guide for detailed information on the DMS maintenance and datafill for IP positions, including the relevant DMS MAP levels.

If the IP position reports to the DMS that it is taking itself out of service (unsolicited by the DMS) it will report a reason code for going out of service. The reason codes are detailed in table 59. Error code 153 indicates that the position has not finished initialization. Error code 156 indicates that the position is undergoing a maintenance activity such as a RAMP file transfer. Error code 157 indicates that the position has lost messaging connectivity with the DMS. Error code 158 indicates that the MPXBASE application has exited. Error code 159 indicates a problem with the Plantronics DA60 audio device.

8.2.2 Test Request

A Test command can be issued from the DMS MAP when the position is in a CRES state. Refer to NTP 297-8403-906, *TOPS-IP Users Guide*, for information on DMS IP position maintenance. Possible failure error codes returned by the position for the Test command include 153 - Initialization in Progress and 159 - No Audio Device.

8.2.3 DMS Error Code Datafill

Possible error codes returned from a maintenance request or a diagnostic request are listed in the following table. The recommended text for each code is stated. For proper DMS MAP responses, the DMS Table **MTCFAIL** needs to be datafilled with the maintenance request error codes.

Error code	Text
153	Initialization in Progress
156	Position Maintenance in progress
157	Connectivity Failure
158	MPXBASE Application Exited
159	No Audio Device
<i>Note:</i> Result error codes 160 through 199 are reserved by IWS for future use.	

TABLE 61. Table MTCFAIL: IWS Maintenance DMS Error Code Datafill

DMS Table **MTCTEST** needs to be datafilled with the Diagnostic request error codes.

Error code	Text
153	Initialization in Progress
156	Position Maintenance in progress
<i>Note:</i> Result error codes 157 through 199 are reserved by IWS for future use.	

TABLE 62. Table MTCTEST: IWS Maintenance DMS Error Code Datafill

8.2.4 External Database Alarms

When one of the two DA database links is inaccessible from the IWS position, the DMS will be informed of a MINOR alarm condition through an DMS IP Maintenance ALARM

Request message. When both of the DA database links are inaccessible, the DMS will be informed of a MAJOR alarm condition.

In the TDM configuration, a similar alarm message was generated only by a Gateway position rather than by every position in that cluster; in the IP configuration the concept of Gateways and cluster does not apply. Because there is a danger that the DMS performance could suffer if an external database failure resulted in a flood of messages from many positions, a position will report this alarm condition only if parameter **SendExtLinkAlarm = 1** under the [PosIPConfig] section of the POSINFO.INI file (the default is to not send this alarm message). Groups of positions sharing the same network access to DA databases should configure no more than a small subset of positions (to ensure redundancy) to send link alarms when applicable.

The position configured to generate Link Alarm messages must be logged into the DA Service configured within the NTDA application as a Link Alarm Service when the DA database becomes inaccessible, in order for an External Database Alarm to be generated. This same criteria exists for TDM positions, but applies to the Gateway positions only.

9.0 Helpful Hints

This section describes helpful hints for the IWS installation and configuration process. It is an overview of the order in which to successfully install and get the IWS positions running and handling calls.

9.1 Installation

Here are some hints and steps to follow for the installation process of the IWS positions.

9.1.1 Required Hardware, Software, and Miscellaneous items for TDM Positions

Ensure that all the hardware is in place and that any required hardware upgrades have been performed, which includes:

- IWS operator positions; required adapter cards; keyboard, monitor and PC base
- LAN (Ethernet or token ring)
- Cables from the IWS gateway positions to the DMS switch
- Audio card cable from the audio card to the channel bank
- IWS maintenance hardware if required: modem phone lines, a modem and cables from the modem to the PC.
- Operator headsets
- Other miscellaneous items such as blank diskettes

9.1.2 Required Hardware, Software, and Miscellaneous items for IP Positions

Ensure that all the hardware is in place and that any required hardware upgrades have been performed, which includes:

- IWS operator positions; Plantronics DA60 audio device/headset; keyboard, monitor and PC base
- LAN (Ethernet)
- IWS maintenance hardware if required: modem phone lines, a modem and cables from the modem to the PC.
- Other miscellaneous items such as blank diskettes

9.1.3 Create a Configuration Chart

Create a chart that shows the layout of the 20 possible positions for a cluster. An example chart for TDM position is shown in Table 63 and a blank chart is provided in Table 64. Determine the cluster number and corresponding DMS TPC number. Determine which two positions will be the gateways, and which one position will be the maintenance position. Add to the chart the applications that will be required, for example, logs, OIA, NTDA, and IWS Billing (previously NTOA). Add the DMS position ID, the IP addresses and node name. This information will be very useful during the installation process. When the installation requires this information, the table will help to identify the required information and help to prevent duplicate addressing.

The IWS base software installation installs a default HOSTS file into the C:\WINDOWS\SYSTEM32\DRIVERS\ETC directory. This file contains the list of IP addresses and their corresponding node names. It is very important that each position has a unique IP address. Also, make sure the IP address and host name for PC values entered in the Control Panel Networking program match the values entered in the HOSTS file.

Table 63 shows a chart with this information. It contains 16 operator positions and a maintenance position for cluster 0/TPC 100:

Site Information: Site A LAN Number: 1 PVC Type: IMUX16 DMS TPC/Cluster Number: 3										
IWS pos #	DMS MP #	DMS pos #	HOSTS file node name	HOSTS file IP address	Pos type	PC type	LAN adapter	Apps	Database router IP addresses	Notes
0	0	500	node0	128.0.0.1	G	WB	Ethernet	IWS Billing		
1	1	501	node1	128.0.0.2	G	WB	Ethernet	IWS Billing		
2	2	502	node2	128.0.0.3	O	WB	Ethernet	IWS Billing NTDA	128.240.1.1 128.240.1.2	
3	3	503	node3	128.0.0.4	O	WB	Ethernet	IWS Billing		
4	4	504	node4	128.0.0.5	O	WB	Ethernet	IWS Billing NTDA OIA	128.240.1.1 128.240.1.2	needs new monitor
5	5	505	node5	128.0.0.6	O	WB	Ethernet	IWS Billing OIA	128.240.1.1 128.240.1.2	
6	6	506	node6	128.0.0.7	O	WB	Ethernet	IWS Billing NTDA	128.240.1.1 128.240.1.2	
7	7	507	node7	128.0.0.8	O	WB	Ethernet	IWS Billing NTDA OIA	128.240.1.1 128.240.1.2	Check power button
8	8	508	node8	128.0.0.9	O	UB	Ethernet	IWS Billing NTDA	128.240.1.1 128.240.1.2	
9	9	509	node9	128.0.0.10	O	UB	Ethernet	IWS Billing		
10	10	510	node10	128.0.0.11	O	UB	Ethernet	IWS Billing		
11	11	511	node11	128.0.0.12	O	WB	Ethernet	IWS Billing		
12	12	512	node12	128.0.0.13	O	WB	Ethernet	IWS Billing		
13	13	513	node13	128.0.0.14	O	WB	Ethernet	IWS Billing		
14	14	514	node14	128.0.0.15	O	WB	Ethernet	IWS Billing		
15	16	516	node16	128.0.0.17	R	UB	Ethernet	Logs		
Pos type: O=general operator position, G=DMS gateway position, R=RAMP PC type: WB=NTNX51WB, UB=NTNX51UB, GX150=Dell GX150, GX270=Dell GX270										

TABLE 63. Example TDM LAN Configuration Chart

Fill in this blank chart to help configure each cluster on a TDM LAN.

Site Information: LAN Number: PVC Type: DMS TPC/Cluster Number:									
IWS pos #	DMS MP #	DMS pos #	HOSTS file node name	HOSTS file IP address	Pos type	PC type	Apps	Database router IP addresses	Notes
0	0								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
Pos type: O=general operator position, R=RAMP PC type: WB=NTNX51WB, UB=NTNX51UB, GX150=Dell GX150, GX270=Dell GX270									

TABLE 64. TDM LAN Configuration Chart

9.1.4 Create a Configuration Chart (IP Positions)

Create a chart that shows the layout of the 20 possible positions that are maintained by a given RAMP position. An example chart for IP positions is shown in Table 65 and a blank chart is provided in Table 66. Determine which one position will be the maintenance position. Add to the chart the applications that will be required, for example, RAMP, OIA, NTDA, and IWS Billing (previously NTOA). Add the DMS position ID, the IP addresses and node name. Include an entry for the DMSNode node name and the OIANode node name if OIA is being used. This information will be very useful during the installation process. When the installation requires this information, the table will help to identify the required information and help to prevent duplicate addressing.

The IWS base software installation installs a default HOSTS file into the C:\WINDOWS\SYSTEM32\DRIVERS\ETC directory. This file contains the list of IP addresses and their corresponding node names. It is very important that each position has a unique IP address. Also, make sure the IP address and host name for PC values entered in the Control Panel Networking program match the values entered in the HOSTS file.

Table 65 shows a chart with this information. It contains 20 operator positions including a maintenance position:

Site Information: Site A LAN Number: 1								
IWS IPMtc Cluster pos #	DMS pos #	HOSTS file node name	HOSTS file IP address	Pos type	PC type	Apps	Router IP addresses	Notes
0	500	node0	128.0.0.1	R	GX150	IWS Billing RAMP	128.240.1.1 128.240.1.2	
1	501	node1	128.0.0.2	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
2	502	node2	128.0.0.3	O	GX150	IWS Billing NTDA	128.240.1.1 128.240.1.2	
3	503	node3	128.0.0.4	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
4	504	node4	128.0.0.5	O	GX150	IWS Billing NTDA OIA	128.240.1.1 128.240.1.2	needs new monitor
5	505	node5	128.0.0.6	O	GX270	IWS Billing OIA	128.240.1.1 128.240.1.2	
6	506	node6	128.0.0.7	O	GX150	IWS Billing NTDA	128.240.1.1 128.240.1.2	
7	507	node7	128.0.0.8	O	GX150	IWS Billing NTDA OIA	128.240.1.1 128.240.1.2	Check power button

TABLE 65. Example IP Position LAN Configuration Chart

8	508	node8	128.0.0.9	O	GX270	IWS Billing NTDA	128.240.1.1 128.240.1.2	
9	509	node9	128.0.0.10	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
10	510	node10	128.0.0.11	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
11	511	node11	128.0.0.12	O	GX270	IWS Billing	128.240.1.1 128.240.1.2	
12	512	node12	128.0.0.13	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
13	513	node13	128.0.0.14	O	GX270	IWS Billing	128.240.1.1 128.240.1.2	
14	514	node14	128.0.0.15	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
15	515	node15	128.0.0.16	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
16	516	node16	128.0.0.17	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
17	517	node17	128.0.0.18	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
18	518	node18	128.0.0.19	O	GX150	IWS Billing	128.240.1.1 128.240.1.2	
19	519	node19	128.0.0.20	O	GX270	IWS Billing	128.240.1.1 128.240.1.2	
DMSNode	NA	dmsnode	128.0.0.30	NA	NA	NA	NA	
OIANode	NA	oianode	128.0.0.40	NA	NA	NA	NA	
Pos type: O=general operator position, R=RAMP								
PC type: WB=NTNX51WB, GX150=Dell GX150, GX270=Dell GX270								

TABLE 65. Example IP Position LAN Configuration Chart

Fill in this blank chart to help configure each cluster on an IP LAN.

Site Information: Site A LAN Number: 1								
IWS IPMtc Cluster pos #	DMS pos #	HOSTS file node name	HOSTS file IP address	Pos type	PC type	Apps	Router IP addresses	Notes
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
DMSNode	NA			NA	NA	NA	NA	
OIANode	NA			NA	NA	NA	NA	
Pos type: O=general operator position, R=RAMP PC type: WB=NTNX51WB, GX150=Dell GX150, GX270=Dell GX270								

TABLE 66. Blank IP Position LAN Configuration Chart

9.1.5 Install Software

Follow the installation steps in this document to load the commercial and IWS base software onto the maintenance position and one gateway position for TDM positions. Use the configuration chart of Table 64 to assign the IP addresses and load the required software packages (see the example shown in Table 63).

For IP positions follow the installation steps in this document to load the commercial and IWS base software onto the maintenance position. Use the configuration chart of Table 66 to assign the IP addresses and load the required software packages (see the example shown in Table 65).

Follow the documentation to install the IWS Billing (previously NTOA) and any other IWS applications onto the two positions.

The Registering and NonRegistering entry lines have a character limit of 128. For Windows applications, the extension can be omitted. The path can be added to the PATH environmental variable (located under Control Panel/System Icon/Advanced Tab/Environment Variables button) or the MPXINI.INI. Each entry line will contain one application. If an application requires command line parameters, they can be added on the entry line as the application.

9.1.6 TDM Position Initialization

At this point, when the positions are restarted (rebooted), and after a few minutes, the position should display the IWS logo screen with the default logon message of “Link Problems Encountered.” If the position initialization fails, here are some of the common pitfalls:

- Files MPXNET.INI and MPXINI.INI, and IP addresses in file HOSTS not configured correctly- Check these files for the proper settings. Also, the IWS profiler should be run with the diagnostic information option on each cluster. This will help to determine installation datafill errors in the MPXNET.INI file. Refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015 for details on running the profiler.
- Languages or tables not datafilled properly (See appropriate documentation for details).

9.1.7 Bringing a TDM Position into Service (RTS)

Perform the necessary DMS switch datafill to configure the two positions, one gateway and one maintenance position. For the example shown in Table 63, this would be positions at node0 and node19.

Go to the DMS MAP and bring the ISG channel connected to the gateway position into service. To ensure that connectivity is established, look at the DSU lights. When the ISG channel is BSYed, the RD light should go out, when RTSed the RD light should be on. Also, an initialized gateway DSU will have the TD and CS lights lit.

If the DSU lights are working correctly, but the ISG channel does not go into service, here are some of the common pitfalls:

- Ensure that the position attached to the DSU was loaded as a gateway position.
- Ensure applications WX25. and MPXMTCGW are on the NonRegistering entry lines in the MPXINI.INI file on the gateway position.
- Ensure that the position attached to the DSU has the correct gateway node name.

When the ISG is successfully RTSed, change to the TPC level on the DMS MAP. Bring the TPC into service. If this fails, here are some of the common pitfalls:

- Ensure applications WX25. and MPXMTCGW are on the NonRegistering entry lines in the MPXINI.INI file on the gateway position.

Change to the MP level on the DMS MAP and Post the gateway position (position 500 in this example). Bring the position into service. If the position does not go into service, here are some of the common pitfalls:

- Ensure that the position node name in the MPXNET.INI file is in the correct cluster, and is matched with the correct position MP number.
- Ensure that the audio card passed the diagnostics with the composite clock.

Use the DMS Test facility to generate the test command to each position. Verify the positions generate a test log to the log facility (RAMP) that is running on the maintenance position. The data in the log message should match the address for the configuration chart. If the log is not generated, ensure the logsrv parameter in the MPXNET.INI file points to the correct node name for the maintenance position.

Load the remaining positions on the token ring and follow these steps to ensure that each position has returned to service (RTS) and can communicate to the log facility. Verify that the test log output for each position agrees with the configuration chart.

9.1.8 IP Position Initialization and Return to Service

At this point, when the positions are restarted (rebooted), and after a few minutes, the position should display the IWS logo screen with the default logon message of “Link Problems Encountered.” If the position initialization fails, here are some of the common pitfalls:

- Files MPXNET.INI, MPXINI.INI, and POSINFO.INI and IP addresses in file HOSTS not configured correctly- Check these files for the proper settings.
- Languages or tables not datafilled properly (See appropriate documentation for details).
- Plantronics DA60 Audio device/headset is not installed.

When an IP position is finished initializing, it will begin sending Inservice request messages to the DMS Switch. The DMS needs to have appropriate datafill for each position. See NTP 297-8403-906 TOPS-IP Users Guide for information on DMS datafill for IP positions and DMS MAP levels for maintenance. Once the position has been returned to service at the DMS MAP, the position should come into service. The IP position will put up informational MessageBoxes for some Inservice response failure messages, to assist with troubleshooting. Some things to check if there are problems with getting a position to come into service are as follows:

- Ensure that you can ping the IP Address of the DMSNode from a DOS prompt.
- Ensure that the DMS and the position are within the supported BCS difference levels.
- Ensure that the DMS position number in the POSINFO.INI file is datafilled on the DMS. Remember that each position must have a unique POSINFO.INI file.
- Ensure that the DMSPortOut parameter in the MPXNET.INI file is datafilled with the corresponding UDP port number that the DMS is datafilled to be listening on.

When the IP position successfully comes into service, load the other positions. Use the DMS Test facility to generate the test command to each position. Verify the positions generate a test log to the log facility (RAMP) that is running on the maintenance position. The data in the log message should match the address for the configuration chart. If the log is not generated, ensure that the IPMtcSrv parameter in the MPXNET.INI file points to the correct node name for the maintenance position.

9.2 IWS Directory Tree

The directory structure for an IWS position is shown in Table 67 (the PC may also contain other directories).

Directory	Subdirectory	Contents
C:\IWSNTDA		IWS NTDA software
C:\IWSNTOA		IWS Billing (previously NTOA) software
C:\MPXBASE		IWS base software
	\DATAFILL	IWS datafill file
	\MPXMPLS	IWS example files
	\TMP	IWS files
	\TOOLS	IWS tools (profiler, audiodiags)
C:\MPXLOGS		Log files
C:\MPXOIA		IWS OIA software
C:\QCF		X.25 files
C:\QCFPRM		VPC files
C:\RAMP		RAMP files
C:\SCRNCAPT		IWS screen captures
C:\WINDOWS		IWS.INI files

TABLE 67. IWS Directory Tree

10.0 Initialization/Runtime Errors

Some errors in the IWS base application occur during the initialization or runtime result in a Windows “message box” or a position log. The message boxes require immediate action to resolve the problem. A log may not be able to be created during initialization, so these messages are the only way to inform the user of a problem. The IWS base software can also create some of these message boxes after the position is running. This section describes these instances.

A message box can usually be cleared by pressing the space bar on the keyboard. During initialization, the IWS base application will then terminate and bring down most of the Registering applications. At this time, restart (reboot) the position and correct the problem. In some cases, another window will have the keyboard focus, and the space bar will have no affect. During these instances, reboot the position, and correct the problem, or take the appropriate action described in the following pages.

10.1 Message Box Data File Location

A list of Message Boxes generated by the base application (**BASMSG.S.DOC**) may be found in the **C:\MPXBASE** directory and may be viewed with the editor of your choice.

10.2 Base Log Data File Location

A list of logs generated by the base application (**BASLOGS.DOC**) may be found in the **C:\MPXBASE** directory and may be viewed with the editor of your choice.

10.3 Logon Failures

During logon, if there are position datafill errors, the IWS base software will not create a Message Box. Instead it will use the Message/Status Area Transient Field (Refer to the *TOPS IWS Base HMI Application Guide* for Message Status Area details) to display the following Message:

- “Logon aborted, services mismatch”

For these failures, refer to the position logs for a description of the failure. Here are three possible causes for this display, and the actions to take:

- The DMS requested logon to a Service number that is not listed in the **XSERVS.TBL** file.

Action: Check the **XSERVS.TBL** file and add the service to the file, or if the service is not required, change the DMS switch datafill.

- The DMS requested logon to a service number that is listed in the **XSERVS.TBL** file, but the application to provide the service was not started.

Action: Add the application needed to provide the service to the registering line of the **MPXINI.INI** file.

- The DMS requested logon to a service number that is listed in the **XSERVS.TBL** file, but the application listed to provide the billing screen was not started.

Action: Add the application needed to provide the billing screen to the registering line of the **MPXINI.INI** file or check that the billing tag is correct in the **XSERVS.TBL** file.

11.0 Engineering Information

11.1 Performance

Performance in the IWS position will vary based on several factors.

- Since the IWS position supports user applications as well as the base applications (IWS Billing, NTDA, and OIA) performance characteristics will be influenced by the number and type of applications installed on a position.
- Performance when swapping between services or applications on the IWS position will vary depending on the number of applications currently running on the workstation. This includes call arrival when the IWS base application automatically swaps to the service providing application indicated by the DMS.
- Synchronization of the initial screen paint and generation of the call arrival tone depends upon the DMS Host/Remote and the DMS stand-alone configuration.
- The DMS traffic load is also an important factor effecting the performance of the position.
- The IWS position platform provides an adequate amount of system memory (RAM) for most system application configurations including Nortel Networks applications and additional third party applications. However, if specific system configurations increase system memory requirements beyond that provided by the system platform, performance will be affected negatively. In this case, system memory must be increased.
- The IWS Base application will throttle OPP ActID messages to the DMS when the exact same ActID message is being sent. A delay of 1 second is required between sending these messages. This will not prevent normal call processing, but will prevent excessive network messaging if an operator is pressing the same hot key many times. This throttling will prevent unnecessary messaging on the network and DMS.
- For TDM positions, the combination of cluster size (4, 16, 20) and DMS gateway position processor type also influence overall system performance.
- For IP positions, since voice connections are set up dynamically, some additional call setup time is involved as compared to TDM positions.
- For IP positions, network engineering can impact performance. It is essential that the TOPS-IP network be engineered properly for call timing and voice quality to be optimized. See NTP 297-8403-906, TOPS-IP Users Guide, for detailed information on engineering requirements for the TOPS-IP network.

11.2 Fault Recovery

In some cases, the IWS position will perform some fault recovery actions.

- In a case where the position state of the IWS is not consistent with that of the switch, the IWS will send a request to logoff from the switch. This allows the operator to finish handling any call which is currently at the IWS, and then the IWS logs off in order to resynchronize the position states. Upon subsequent logon, the IWS will then be synchronized with the switch.
- On TDM positions, if the Audio card composite clock source is lost after the position is RES (in service), the position will go BSY (out of service). If an operator is logged on and handling a call, the position will request to go unoccupied to force the operator off and then go BSY. This will prevent a loss of the digital voice where the operator would not be able to hear the customer.

12.0 Addressing Guidelines

The IWS utilizes the industry standard Internet Protocol as the basis for its inter-machine communications. No restrictions are put on the address scheme used to identify machines in an IWS system. However, Internet Protocol addressing knowledge is required to configure the system properly.

The IWS places no restrictions on the address scheme used, which allows for the full flexibility available in Internet Protocol addressing. Currently, isolated token rings limit the usefulness of this flexibility. However, the flexibility was left intact for future possibilities.

WARNING: The power available in IP addressing can cause problems if not handled properly. Mistakes in address assignment can cause faulty and/or erratic system operation. In addition if the future progresses beyond isolated token rings, a multiple network environment only adds to the complexity of the problems found.

12.1 Address Basics

The IP (Internet Protocol) address structure consists of a 32-bit address broken into two parts, network address and host address. There are three primary address classes which trade off network address size versus host address size. The address classes are: Class A, Class B and Class C.

The common notation used for an address consists of four 8-bit values separated by periods or dots. Whether the values are hex or decimal depends on preference. In this document, decimal notation is used. Using the dot notation, the three address classes have the following network versus host breakouts.

Class A: network.host.host.host

Class B: network.network.host.host

Class C: network.network.network.host

Actually, the most significant network byte has some additional restrictions which reduce its range. The most significant bits in this byte determine the class of the address. The bit-size address notation for each class has the following form:

Class A: 0 | 7-bit Network | 24-bit Host

Class B: 1 0 | 14-bit Network | 16-bit Host

Class C: 1 1 0 | 21-bit Network | 8-bit Host

In summary, the class address ranges and maximum possible number of network/host addresses are listed in the table below.

Class	Network address values	Maximum network numbers	Maximum host numbers
A	0-127	126	16,777,124
B	128-191	16,384	65,534
C	192-223	2,097,152	254

TABLE 68. IP Class Address Ranges

NOTE: IP Addressing treats either an all 0 or all 1 Network address as a special case. Likewise, an all 0 or all 1 Host address is a special case. These values should not be used and are not included in the summary numbers in Table 68.

12.1.1 IWS Suggested Address Scheme

A Class B IP Address is suggested for the IWS. The address dot notation is suggested is:

IWS Address: network.network.cluster.position+1

A single Network address may be used on all token rings since no token-ring to token-ring connections exists. The suggested Class B network.network address is 128.0 in decimal dot notation.

The third and fourth bytes track the Cluster Number and Position Number to be assigned to Position in question. The Position number is offset by 1 since Cluster and Position Numbers are zero based. This prevents Cluster 0/Position 0 from being an all 0 Host address. An example address in Class B decimal dot notation (network.network.host.host) for Cluster 0/Position 0 is 128.0.0.1.

For any non-Position nodes within a cluster, the fourth byte is set to an invalid Position number. A Dedicated DMS gateway would be a non-Position node in a Cluster. An example address in Cluster 0 using the invalid Position number 100 would be 128.0.0.100.

For any node not in a Cluster, the third byte is set to an invalid Cluster number. A Maintenance position is not in a Cluster. An example address using the invalid Cluster number 10 would be 128.0.10.1.

12.2 Network Layer Correction for TMS Problem

The loadsharing mechanism described for the Network Layer is currently the default gateway routing mechanism. A Primary/Secondary mechanism can be used in place of the loadsharing mechanism. This is required only for TOPS Message Switch (TMS) loads containing the deficiency described in the next paragraph.

- BCS 35 TMS Loads prior to TMS35I1 should use the Primary/Secondary mechanism only.
- BCS 36 TMS Loads prior to TMS02E should use the Primary/Secondary mechanism only.
- BCS 37 and beyond TMS Loads should use the loadsharing mechanism only.

Prior to the TMS enhancement, the TMS did not allow the individual X.25 channels connecting the IWS to the DMS to be split over the two X.25 links to the IWS. Both X.25 links may be used, as the loadsharing mechanism would do, but when both are used the TMS bounces its primary designation between the two links. This bouncing can cause corruption in the message sequences received by the IWS. The TMS needs to support the splitting of the X.25 channels and implement the primary designation on a per channel basis before loadsharing can be used.

The Network Layer can use a primary/secondary mechanism instead of the default loadsharing mechanism. The Primary/Secondary scheme works around the TMS deficiency. Under this scheme, gateway A is fixed as the primary gateway for all DMS bound OPP message traffic. If gateway A is not available, gateway B will be used if available. And OIA uses a reverse scheme. gateway B is fixed as the primary gateway for all OIA message traffic and gateway A is used when gateway B is not available.

The primary/secondary mechanism can be turned on with an entry in the **MPXNET.INI** file. Under the [NetConfig] Section, the following entry will turn on Primary/Secondary.

```
[NetConfig]
```

```
GtwyUsage=PrimarySecondary
```

Note: The loadsharing mechanism and the Primary/Secondary mechanism have different TMS Engineering requirements. The Primary/Secondary mechanism should not be used without a corresponding TMS load or without the proper TMS Engineering. See NT Field Support for information on this situation.

The NIC U.S. Postal Address is:

DDN Network Information Center
14200 Park Meadow Dr., Suite 200
Chantilly, VA 22021

12.3.2 Documents Distributed by the NIC

The NIC distributes the following documents, all of which are available in hard copy and some of which are available on-line. Many of these documents are deposited at the DTIC (Defense Technical Information Center).

An annotated list of NIC publications is found in the file **netinfo/nic-pubs.txt** on **nic.ddn.mil**. To retrieve a document, open an FTP connection to the **nic.ddn.mil** host (**192.112.36.5**), login as user **ANONYMOUS** and provide the password **GUEST**. Retrieve the desired file.

12.3.3 NIC Application

This form must be completed as part of the application process for obtaining an IP Network Number. To obtain an Internet number, please provide the following information on-line, via electronic mail, to **hostmaster@nic.ddn.mil**. If electronic mail is not available, please mail hard copy to:

DDN Network Information Center
14200 Park Meadow Dr., Suite 200
Chantilly, VA 22021

Note 1: This application is solely for obtaining a legitimate IP network number assignment. If interested in officially registering a domain please complete the domain application found in **netinfo/domain-template.txt**. If FTP is not available, please contact **hostmaster@nic.ddn.mil** or phone the NIC at (800) 365-3642 for further assistance.

Note 2: European network applications should use the European template (**netinfo/european-ip-template.txt**). Please follow their instructions for submission.

1. If the network will be connected to the Internet, you must provide the name of the governmental sponsoring organization, and the name, title, mailing address, phone number, net mailbox, and NIC Handle (if any) of the contact person (POC) at that organization who has authorized the network connection. This person will serve as the POC for administrative and policy questions about authorization to be a part of the Internet. Examples of such sponsoring organizations are: DISA DNSO, the NSF (National Science Foundation), or similar military or government sponsors.
 - a. Sponsoring Organization
 - b. Contact name (Lastname, Firstname)
 - c. Contact title
 - d. Mail Address

- e. Phone
 - f. Net mailbox
 - g. NIC handle (if known)
2. Provide the name, title, mailing address, phone number, and organization of the technical POC. The on-line mailbox and NIC Handle (if any) of the technical POC should also be included. This is the POC for resolving technical problems associated with the network and for updating information about the network. The technical POC may also be responsible for hosts attached to this network.
 - a. NIC handle (if known)
 - b. Technical POC name (Lastname, Firstname)
 - c. Technical POC title
 - d. Mail address
 - e. Phone
 - f. Net Mailbox
3. Supply the short mnemonic for the network (up to 12 characters). This is the name that will be used as an identifier in Internet name and address tables.
 - a. Network name
4. Identify the network geographic location and the responsible organization establishing the network.
 - a. Postal address for main/headquarters network site
 - b. Name of Organization
5. Question #5 is for MILITARY or DOD requests, ONLY.
If you require that this connected network be announced to the NSFNET please answer questions below.
 - a. Do you want MILNET to announce your network to the NSFNET? (Y/N)
 - b. Do you have an alternate connection, other than MILNET, to the NFSNET? (please state alternate connection if answer is yes)
 - c. If you've answered yes to the question above, please state if you would like the MILNET connection to act as a backup path to the NSFNET? (Y/N)
6. Estimate the number of hosts that will be on the network:
 - a. Initially
 - b. Within one year
 - c. Within two years
 - d. Within five years:

-
7. Unless a strong and convincing reason is presented, the network (if it qualifies at all) will be assigned a class C network number. If a class C network number is not acceptable for your purposes state why. (Note: If there are plans for more than a few local networks, and more than 100 hosts, you are strongly urged to consider subnetting. [See RFC 950].

Reason

8. Networks are characterized as being either Research, Defense, Government - Non Defense, or Commercial, and the network address space is shared between these four areas. Which type is this network?

Type of network

9. What is the purpose of the network?

Purpose

For further information contact the DDN Network Information Center (NIC):

Via electronic mail: **hostmaster@nic.ddn.mil**

Via telephone: (800) 365-3642

Via postal mail:

DDN Network Information Center
14200 Park Meadow Dr., Suite 200
Chantilly, VA 22021

13.0 Appendix A: Windows XP Professional Configuration

Once the Windows XP Professional operating system has been installed, certain system settings must be changed in order for the IWS software to work seamlessly. If Windows XP Professional Service Pack 2 (SP2) is installed, additional configuration work must be done. The SP2 specific documentation is found in Appendix G. Perform the steps in this section first, then Appendix G if it applies.

Configuration specifics in this chapter:

TABLE 69. Configuration areas

Section	Page
Automatic login as Administrator	page 354
Taskbar and Start Menu	page 357
Daylight Savings Time	page 359
Password Expiration	page 361
Disabling of Windows Sounds	page 366
Disabling Sticky Keys	page 369
Disabling Automatic Updates	page 371
Disabling Java Language Updates	page 373
Folder Options	page 375
Display Properties	page 376
Selecting a starting theme	page 376
Desktop	page 378
Screen saver	page 380
Transition Effect	page 383
Screen resolution: 640 x 480 ^a	page 385
Creating the IWS theme	page 389
Power Scheme Verification ^b	page 392

a. Optional. Needed for monitors smaller than 15”.

b. Performed after IWS171 software installation.

IMPORTANT:

Depending upon the source of your Windows XP Professional operating system, you may need to make some or all of these configuration changes. As of IWS 17.1, the 800x600 screen resolution is the default. Unless the monitor is very small (less than 15”), this step should be skipped.

13.1 Automatic login as Administrator

Windows XP Professional normally requires that a user logon to the machine every time a PC is rebooted. This behavior interferes with normal IWS operation. To prevent the required manual password login, the PC is setup to automatically log in upon reboot.

For the purposes of this example, we will be using the user name of Administrator that is a member of the Administrators group. It is not required to use the user account name of Administrator. You can select any name you want. However, it is required that the user account name selected is a member of the Administrators group. Under Windows XP Professional, the Administrators group is the only one allowed to install software. Anyone needing to install IWS and third party software packages must have that privilege.

To establish automatic login as administrator, follow these steps:

1. Go to the Start menu and select Run.
2. Enter: control userpasswords2

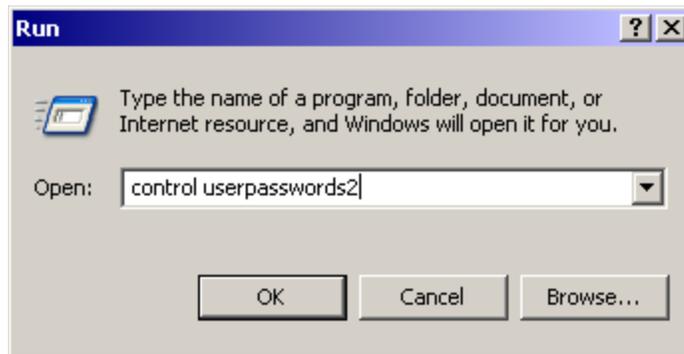


FIGURE 120. Run window

3. The Users Account window will appear.

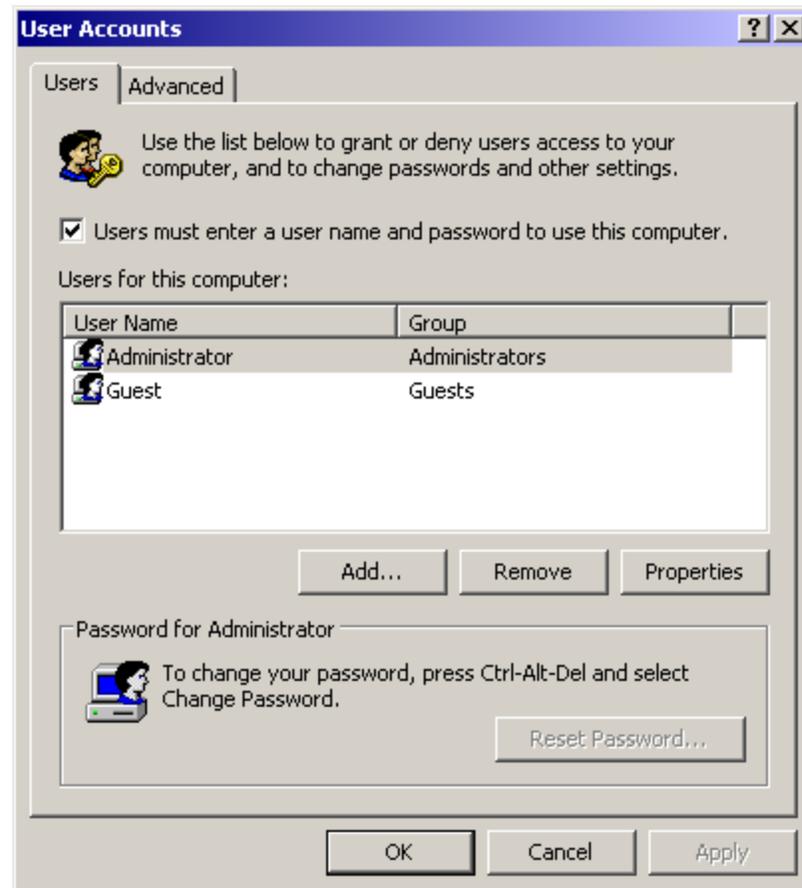


FIGURE 121. User Accounts window

4. If the Administrator account is not selected, select it with a single right mouse click.
5. Uncheck the box titled, "Users must enter a user name and password to use this computer."
6. By unchecking the box, the Users for this computer section will greyed out.
7. Click on the Apply button.

Note: You must enter the administrator password for the automatic logon before clicking on the OK button.

8. Since the Administrator has been the user identified to automatically log in, the password for the Administrator account must be entered and confirmed.



FIGURE 122. Administrator logging in

9. After the password has been entered, click on the OK button.
10. The setup for this item is now complete.

Note 1: If the administrator password needs to be changed, return to this window and reenter it.

Note 2: The administrator must log in with this same password to make any additional changes in this chapter.

11. Reboot the computer at this time and verify that automatic login occurs. This will also verify that all subsequent changes are applied against the Administrator user name.

13.2 Taskbar and Start Menu

The Taskbar is the area of the screen that typically runs along the bottom of the user's screen. Depending on the various settings it has available, it can interfere with the operation of the IWS software. To ensure the smooth operation of the IWS software, we will disable most of its options.

1. Bring up the Start Menu
2. Select Settings.
3. Select Control Panel.
4. Click on the Taskbar and Start Menu Properties.
5. Select the options to match Figure 123.



FIGURE 123. Taskbar & Start Menu Properties

6. Click on the Apply button.
7. Click on the Start Menu tab.

Note: For consistency with IWS documentation, we use pictures assuming that the user has the Classic Start Menu selected. While this particular change is not required, it is recommended.

8. Select the Classic Start menu as shown in Figure 124.

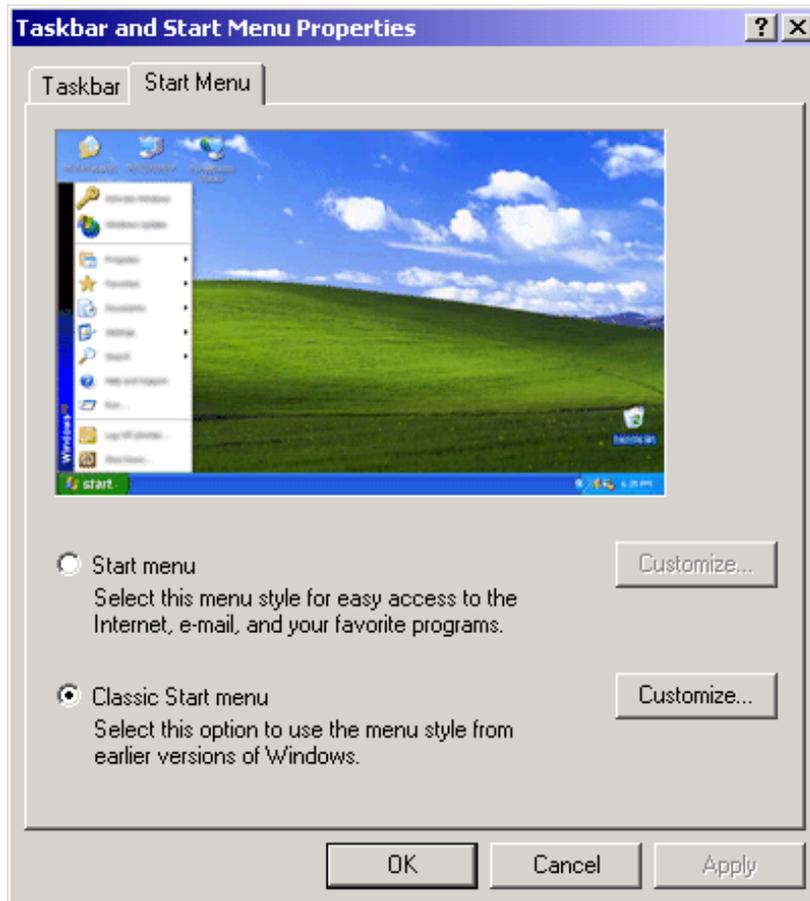


FIGURE 124. Classic Start menu

9. Click the Apply button.
10. Click the OK button.

13.3 Daylight Savings Time

In time zone regions that use Daylight Savings Time, problems can arise because of the way that Windows XP Professional handles this event. When the daylight savings time event occurs, Windows will open a window up on the screen announcing that the time has changed and wants the user to confirm the new time.

If an operator was logged on to the position and handling a call at the time this happens, it would be very confusing. Even if no one is currently logged onto the IWS, the window will still be there when the operator finally does go to log on. To prevent this from occurring, we need to disable this feature.

1. Bring up the Start Menu.
2. Select Settings.
3. Select Control Panel.
4. Click on the Date and Time Properties to bring up that window.

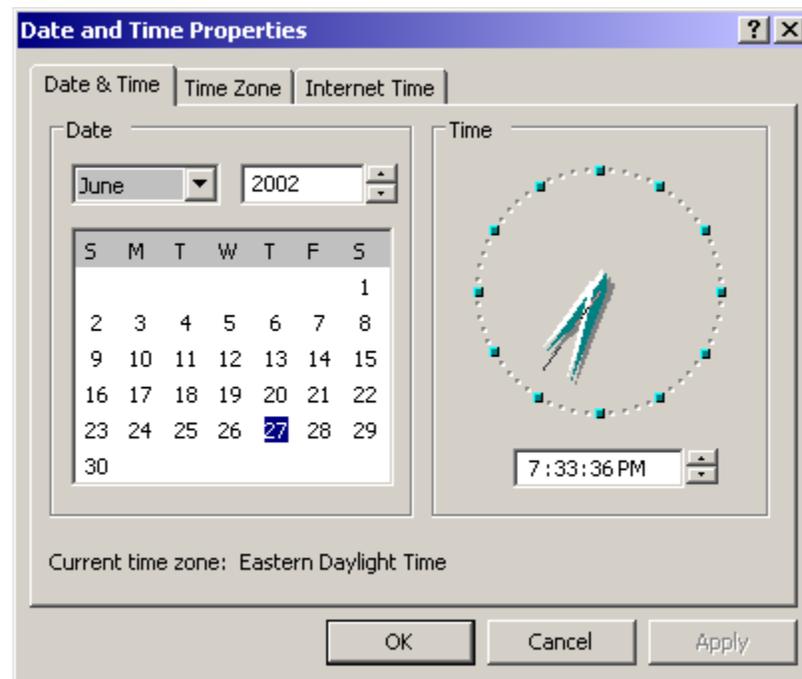


FIGURE 125. Date and Time Properties

5. Select the Time Zone tab on top. This will bring up the window as in Figure 126.

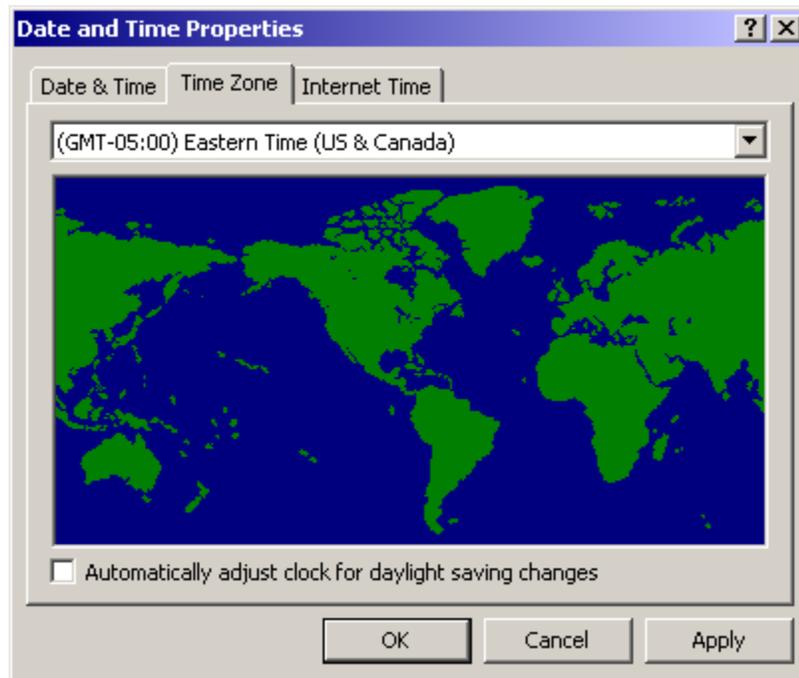


FIGURE 126. Changed Date and Time Properties

6. From the drop down list select the appropriate time zone for your location.
7. The box titled “Automatically adjust clock for daylight saving changes” will be checked if day light savings time applies to your time zone.
8. Use the mouse to uncheck the box.
9. Click on the Apply button.
10. Click on the OK button.

13.4 Password Expiration

By default, Windows XP Professional is set up so that the user passwords will expire. An expired password would prevent the position from coming back into service in the advent of a position reboot. After a RAMP upgrade of an office, all positions would be in this state until each password was manually changed. Therefore, to maintain normal IWS operation, we will recommend that you disable the password expiration option.

Disabling the password expiration does not prevent the passwords from being changed; it simply means that the passwords do not require periodic change. It should be noted that disabling the password expiration is optional. Some users may have security policies that require that the passwords change. The user must weigh the trade-off between higher security (expiring passwords) with more maintenance compared to lower security (no expiring passwords) with less maintenance.

This procedure shows you how to disable the password expiration:

1. Bring up the Start Menu.
2. Select the Settings.
3. Select the Control Panel.
4. Click on the Administrative Tools to bring up the window as in Figure 127.

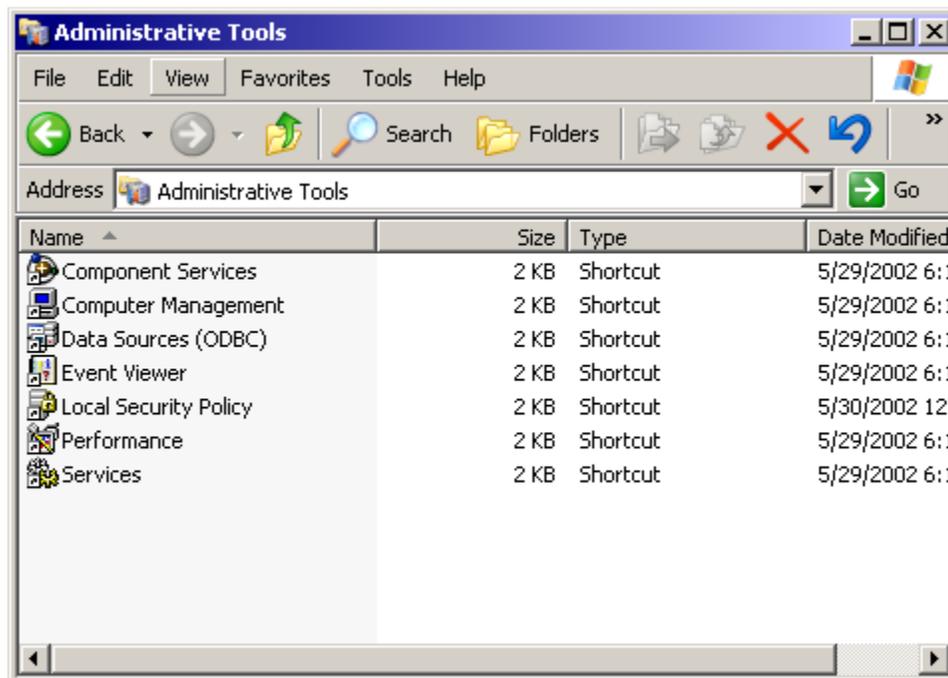


FIGURE 127. Administrative Tools window

5. Click on the Local Security Policy icon.

6. The Local Security Settings window appears with the various security settings as in Figure 128.

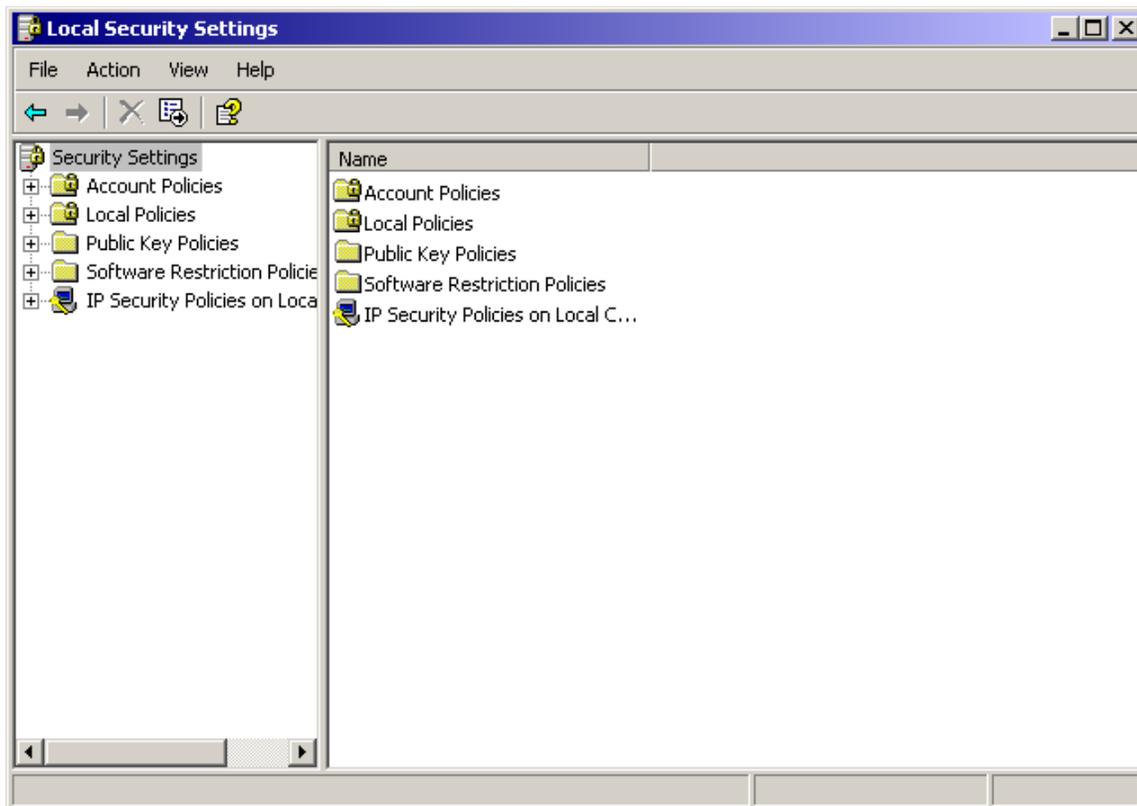


FIGURE 128. Local Security Settings window

7. Click on the Account Policies icon to access the sub menu.

8. Within the Account Policies options, click on Password Policy.

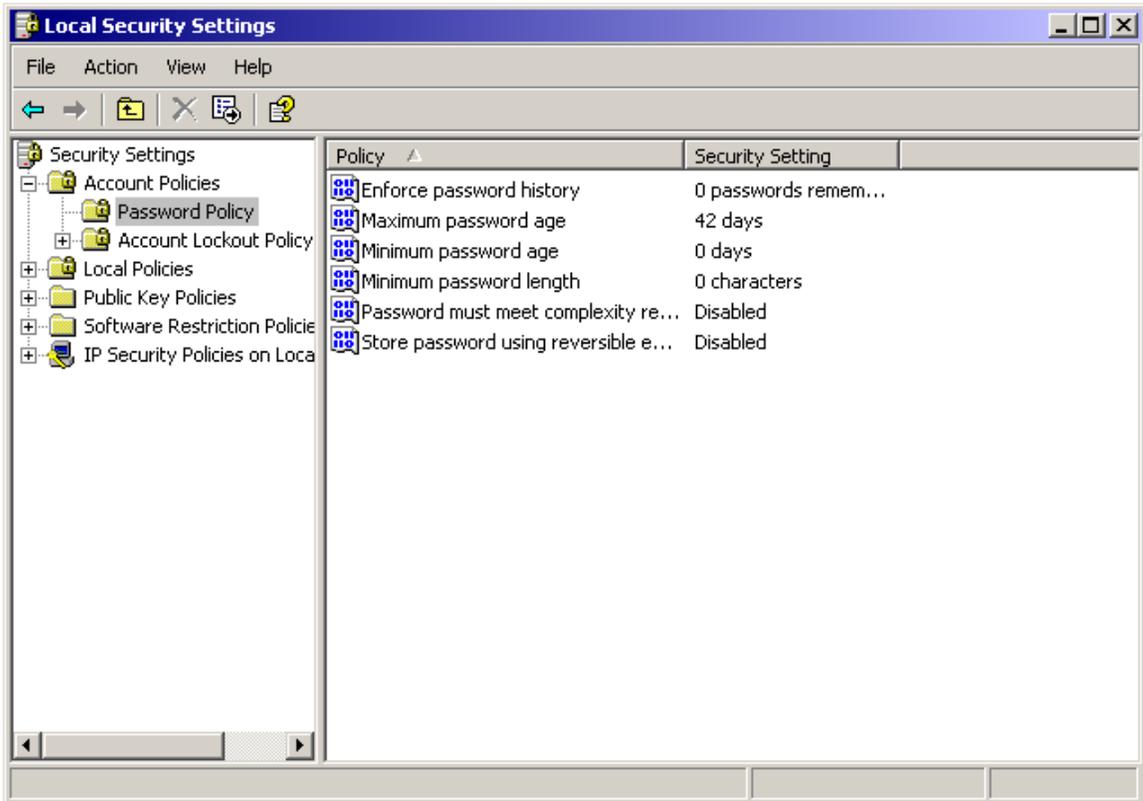


FIGURE 129. Password Policy options

9. The policy options will appear on the right side of the window.

10. Click on the Maximum password age option to edit the value.

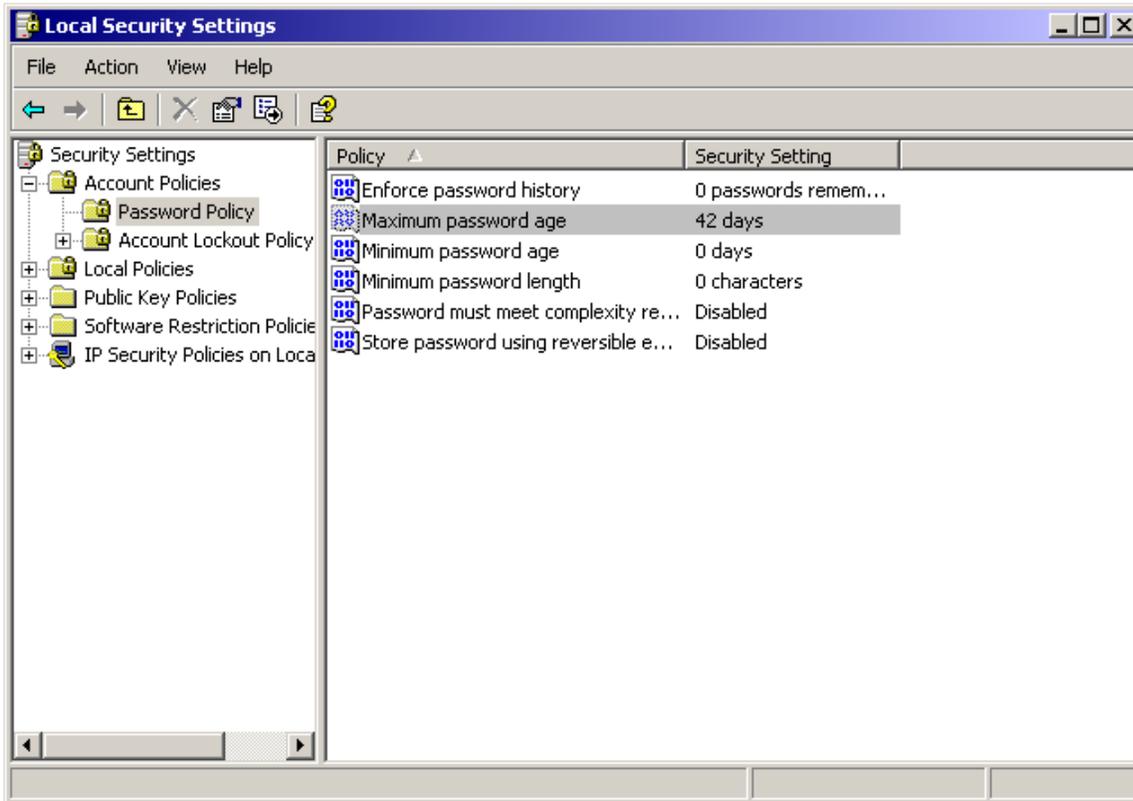


FIGURE 130. The maximum password age

11. This brings up the Maximum password age properties window.

12. By default, the password expires in 42 days.

13. Change this value to 0 days as in Figure 131.



FIGURE 131. Changed Maximum password age

14. Click the Apply button.
15. When the value is set to 0 days, the text changes to state that the “Password will not expire.”
16. Click on the OK button.

13.5 Disabling of Windows Sounds

Windows XP Professional, like previous versions of Microsoft Windows products, allows for various sounds to be triggered when system events occur. For example, if a program has a menu bar, Windows can make a sound when the menu is opened. To prevent these system sounds from being played to the WAV device hooked up to the system, it is necessary to disable them. Otherwise, the operator may hear them through the headset when talking with a subscriber.

To disable the various sounds:

1. Bring up the Start Menu.
2. Select the Settings.
3. Select the Control Panel.
4. Click on Sounds and Audio Devices.
5. The following window will appear:

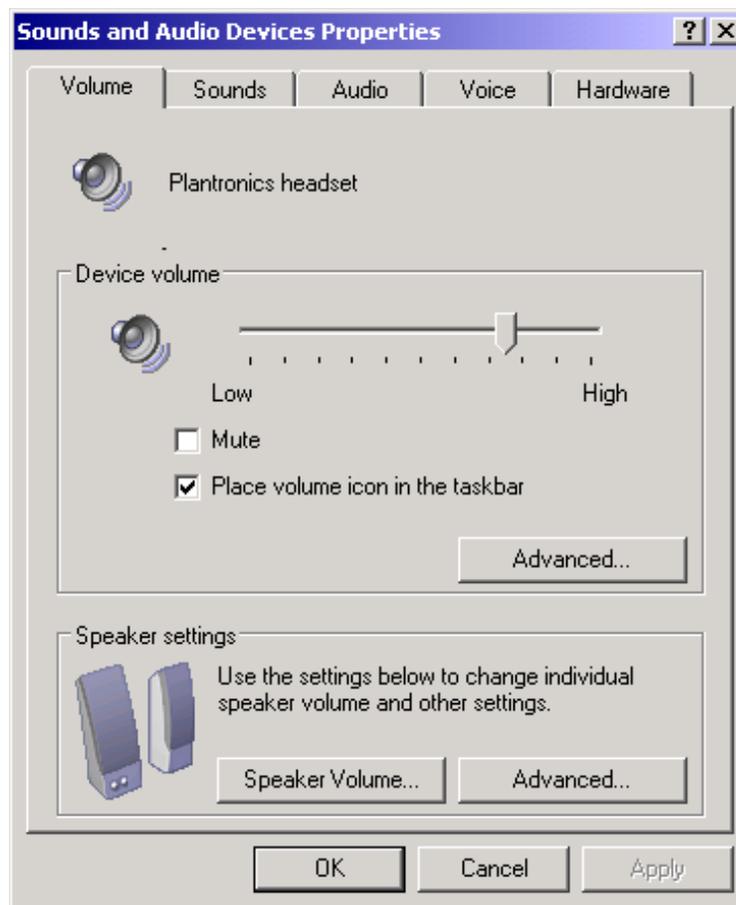


FIGURE 132. Sounds and Audio Devices Properties

- Click on the Sounds tab.

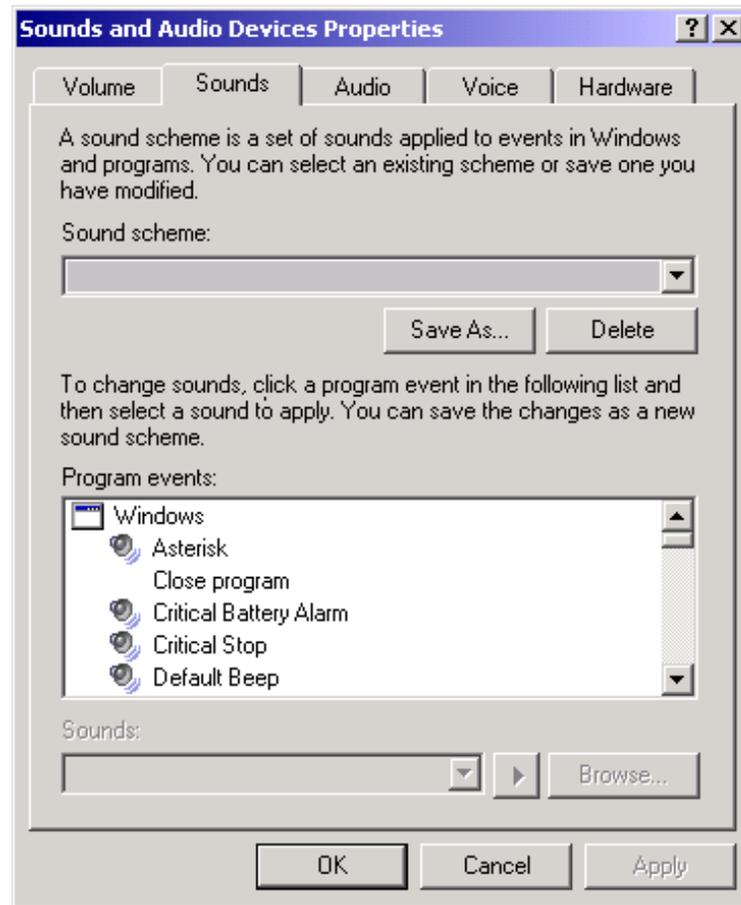


FIGURE 133. Sounds tab

- To disable the Sound schemes, click on the drop down list and select “No Sounds”.
- When you do, you will be prompted to save the existing sound scheme with this window:

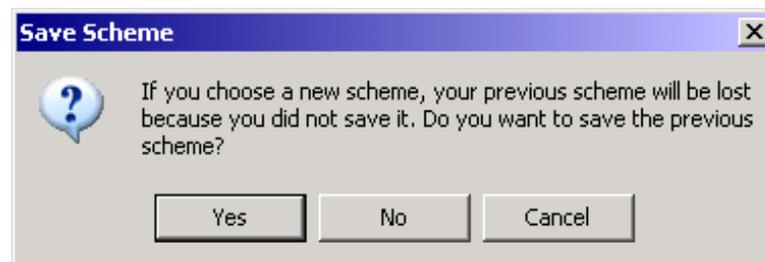


FIGURE 134. Save Scheme window

9. Click the No button. This will not save the previous settings.
10. When you have done that, your screen should appear as Figure 135:

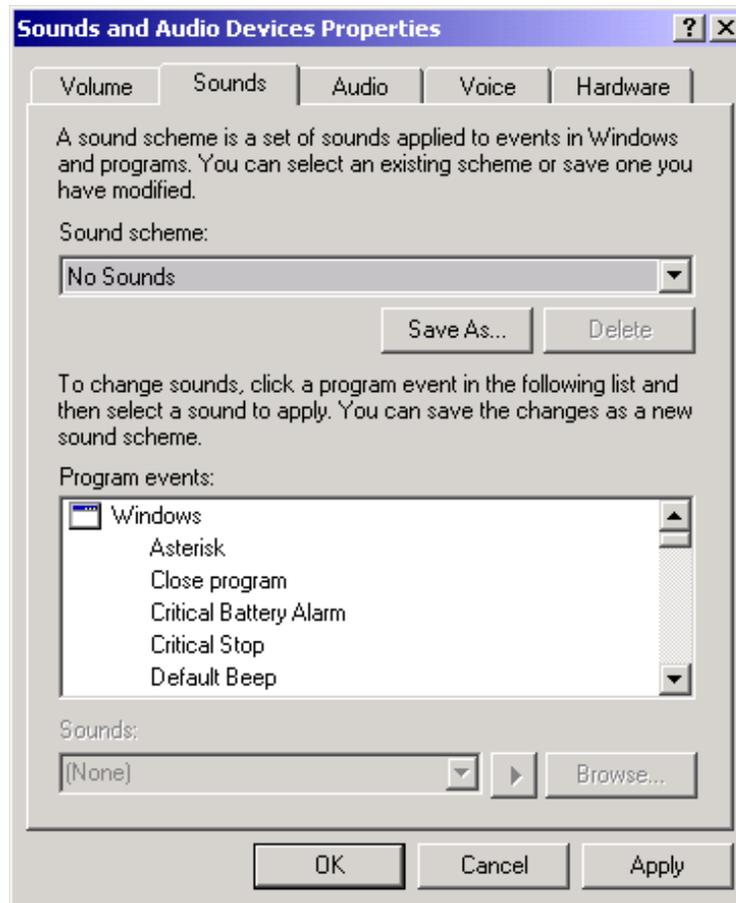


FIGURE 135. No Sounds selected

11. Click on the Apply button.
12. Click the OK button.

13.6 Disabling Sticky Keys

Sticky keys are a Microsoft accessibility feature to help people with physical disabilities to be able to use the keyboard. This feature is activated by repeatedly holding down on the shift key. When this is done, a window will come up asking the user if they want this feature. To prevent this from occurring, we will disable the shortcut that Microsoft created with the shift key.

To disable the sticky keys:

1. Bring up the Start Menu.
2. Select the Settings.
3. Select the Control Panel.
4. Click on Accessibility Options. The following window will appear:

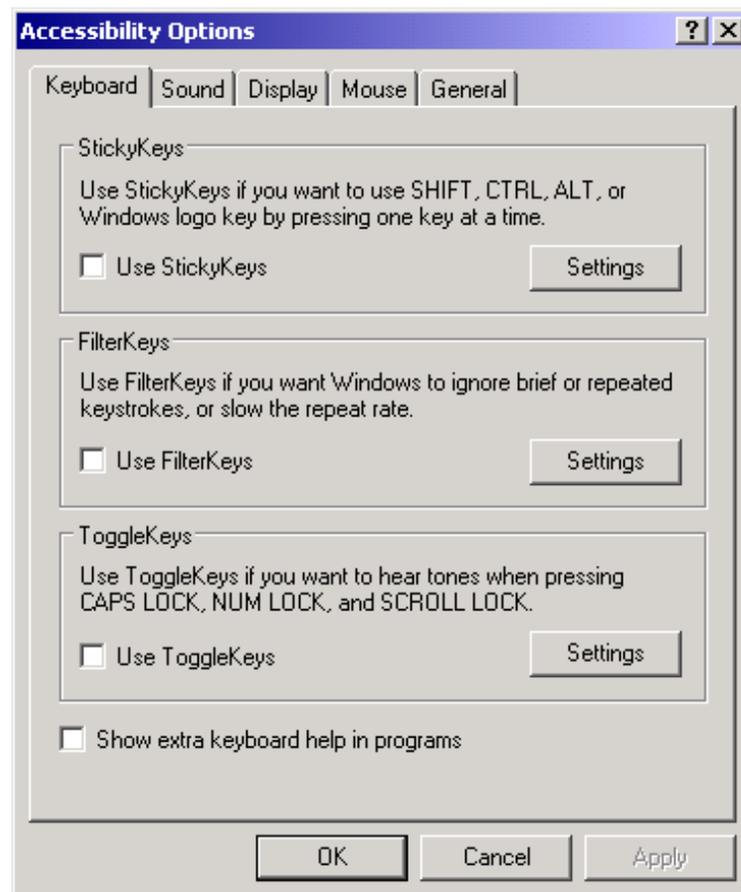


FIGURE 136. Accessibility options

5. Click on the Settings button within the StickyKeys section.

6. The Settings for StickyKeys window will appear.

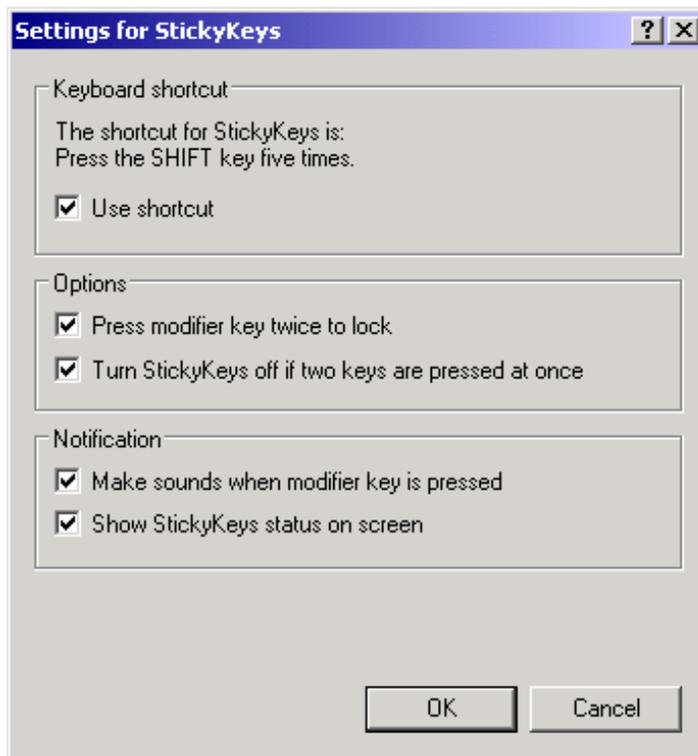


FIGURE 137. Settings for StickyKeys

7. In the Keyboard shortcut section, uncheck the box that says, “Use shortcut”.
8. Click on the OK button.
9. This will return you to the Accessibility Options window.
10. Click Apply.
11. Click OK.

13.7 Disabling Automatic Updates

Microsoft provides a feature to automatically go out on the Internet, check for bug fixes, and download them to the PC for installation. However, this could result in detrimental behavior if the PC starts downloading potentially sizeable files from Microsoft's FTP sites during the middle of call processing.

Nortel Networks suggests that customers periodically update their machines during scheduled maintenance points to correct potential problems.

To disable the automatic updates:

1. Bring up the Start Menu.
2. Select the Settings.
3. Select the Control Panel.
4. Click on System. The following window will appear:

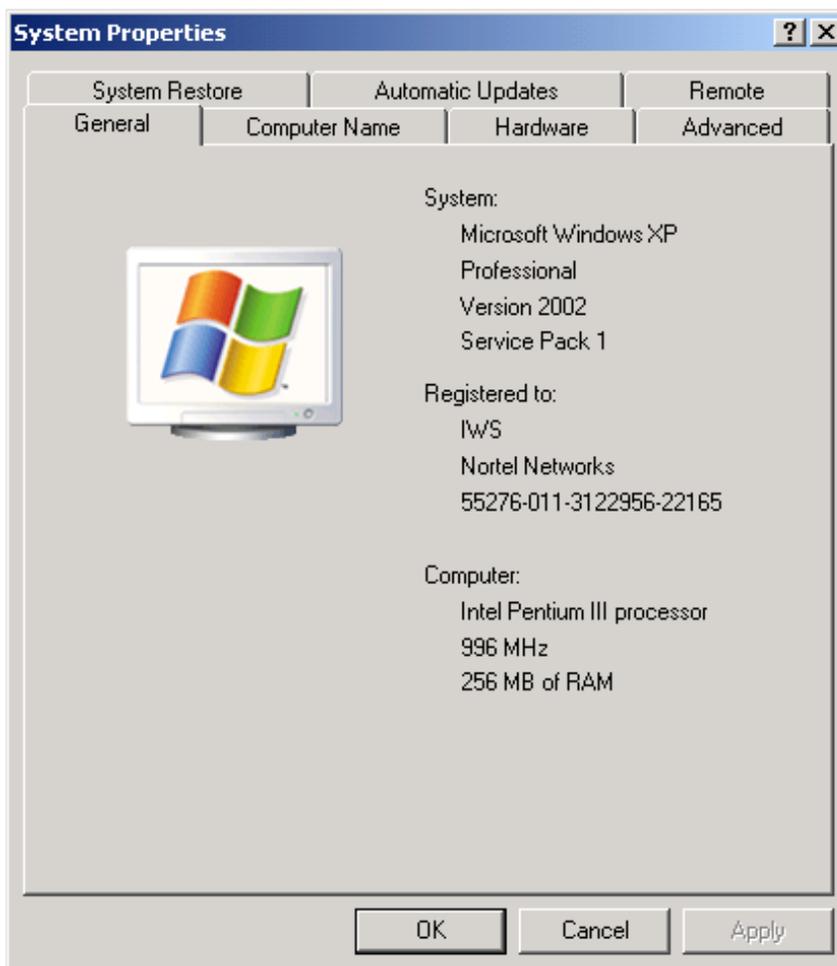


FIGURE 138. System Properties

5. Click on the Automatic Updates tab.
6. The following window appears.

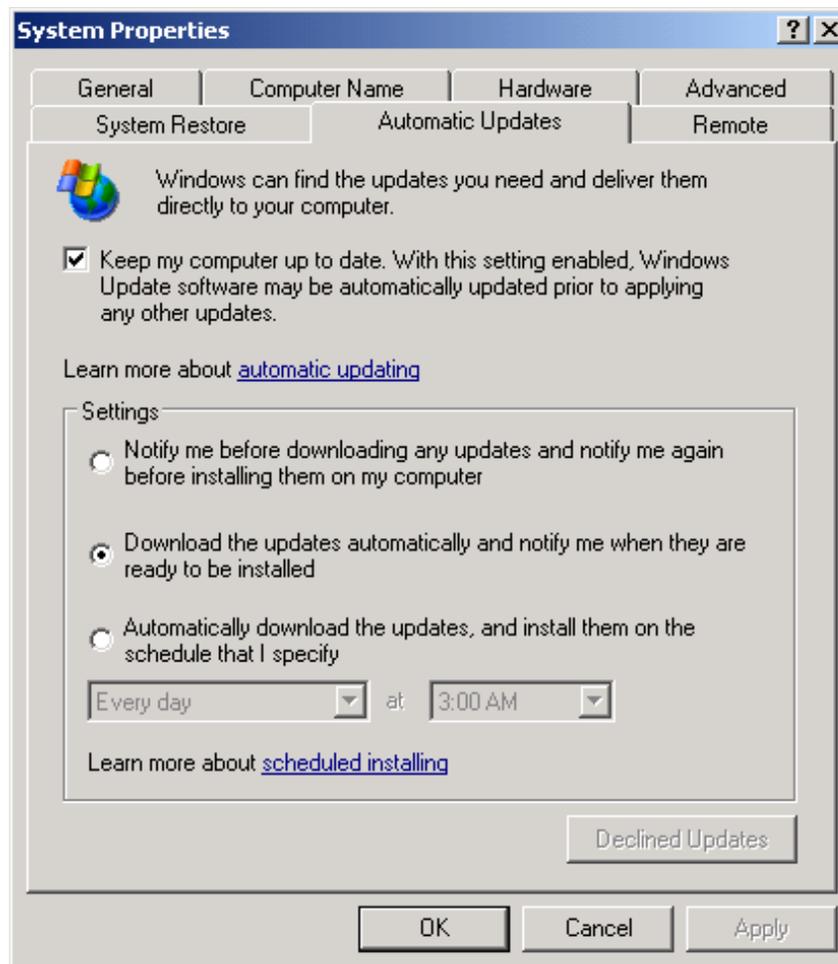


FIGURE 139. System Properties - Automatic Updates tab

7. Uncheck the box requesting “Keep my computer up to date...”

Note: Unchecking the box causes the lower region to be greyed out.

8. Click the Apply button.
9. Click the OK button.

13.8 Disabling Java Language Updates

This step only applies to machines that may have come pre-installed with the Java language created by Sun Microsystems. On some PCs (such as the HP Compaq DC5000), the manufacturer installed and configured the software to periodically attempt to check the Sun website for available updates.

The problem is that a small window will punch through all other windows above it in the system tray (lower right hand corner of the screen). An operator running IWS may see this window appear. Since IWS software does not require the Java language, this automatic update check will be disabled.

To disable the automatic update check:

1. Bring up the Start Menu.
2. Select the Settings.
3. Select the Control Panel.
4. Click on Java Plug-in. The following window will appear:

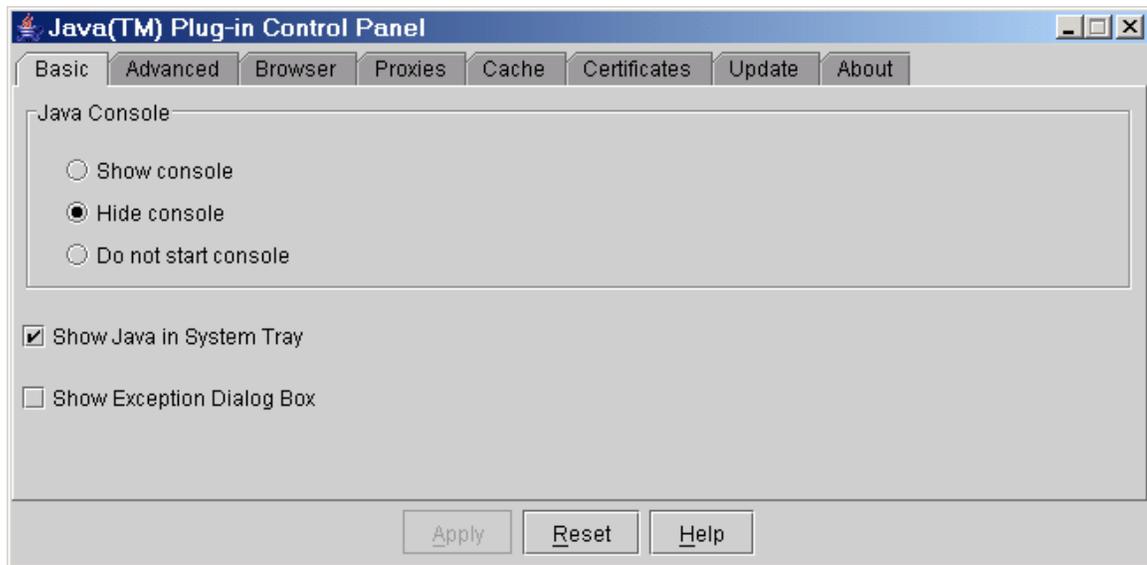


FIGURE 140. Java Plug-in - Basic tab

5. Click on the Update tab.

6. The following screen will appear:

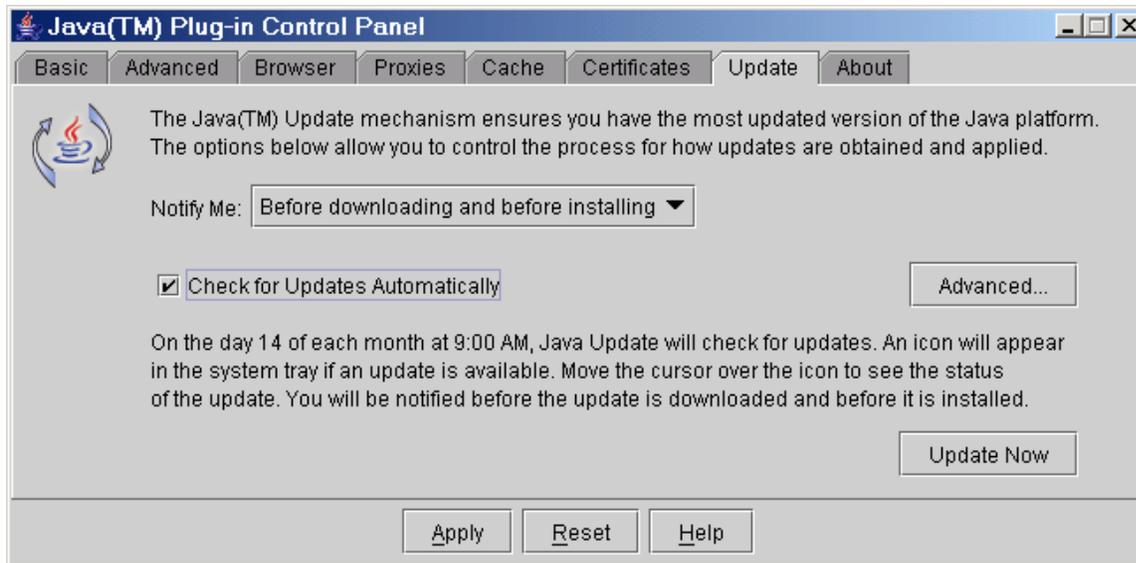


FIGURE 141. Java Plug-in - Update tab

7. Uncheck the box requesting, “Check for Updates Automatically”.
8. Click on the Apply button.

13.9 Folder Options

When manual file transfers are performed during RAMP, the Windows Explorer window is used and it must be set up to open each folder within the same window. To set the folder options, follow these steps:

1. Bring up the Start Menu.
2. Select the Settings.
3. Select the Control Panel.
4. Click on Folder Options. The following window will appear:

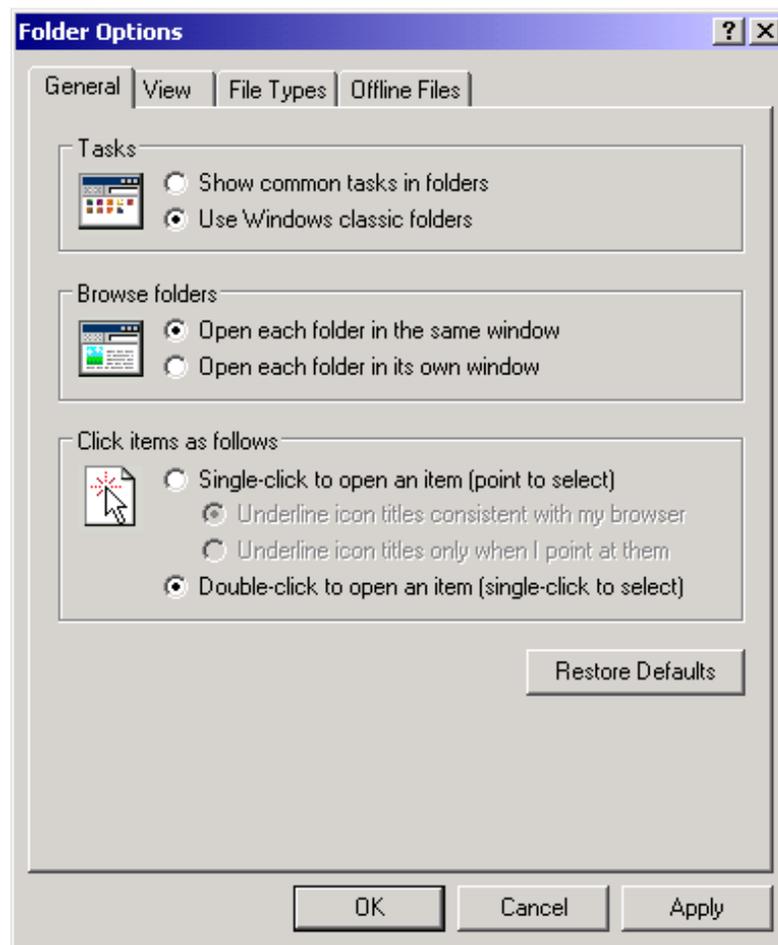


FIGURE 142. Folder Options

5. Verify that the Task section has “Use Windows classic folders” selected and that the Browse folders section has “Open each folder in the same window” selected.
6. Click on the Apply button.
7. Click on the OK button.

13.10 Display Properties

The IWS set of display settings will end up being incorporated into a custom theme. But for starters, we need to select the Windows Classic theme. The IWS custom theme will be based upon this theme.

Note: Each step must be completed for the entire theme to be established properly.

13.10.1 Selecting a starting theme

To modify the existing theme:

1. Bring up the Start Menu,
2. Select Settings.
3. Select Control Panel.
4. Click on Display. The Display Properties window will appear:
5. To start with the classic theme, click on the drop down list, and then select the Windows Classic option.

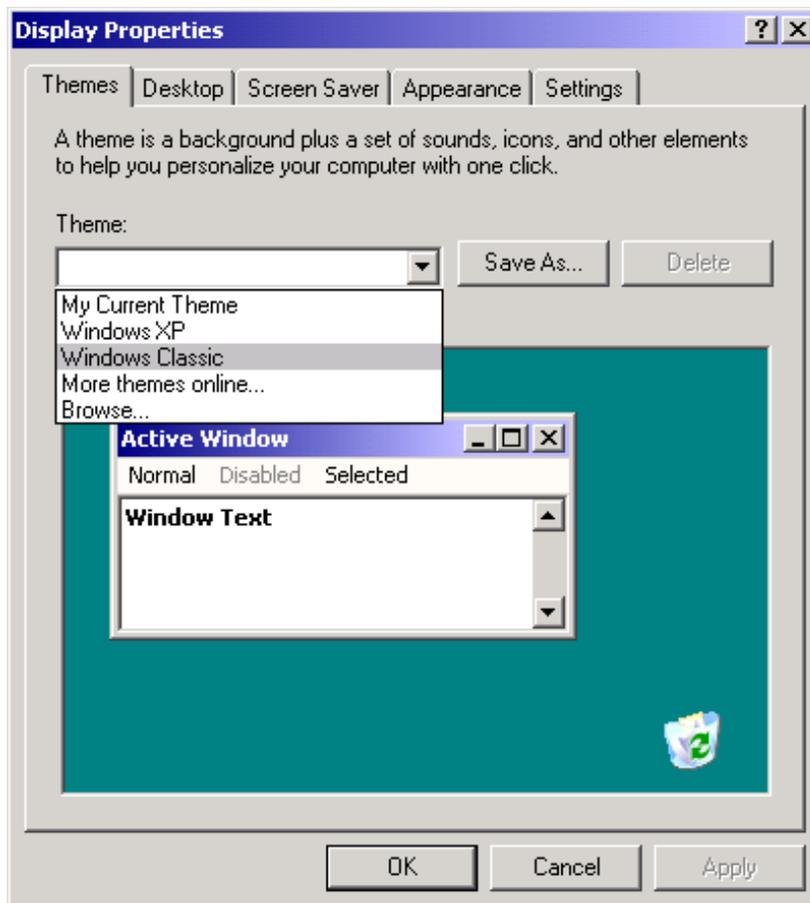


FIGURE 143. Windows Classic selection

-
6. Next, click on the Apply button.

Note: This applies the selected theme to the system. As the following documented changes are made under the Display properties, this base Windows Classic theme is modified. After all the changes are made, you will need to save your modified theme and use it as the IWS theme.

7. Once the new theme is applied, proceed to the instructions in Section 13.10.2 “Desktop”.

13.10.2 Desktop

From the Display Properties window, follow these steps to disable the Desktop Cleanup wizard:

1. Select the Desktop tab. The following window appears:

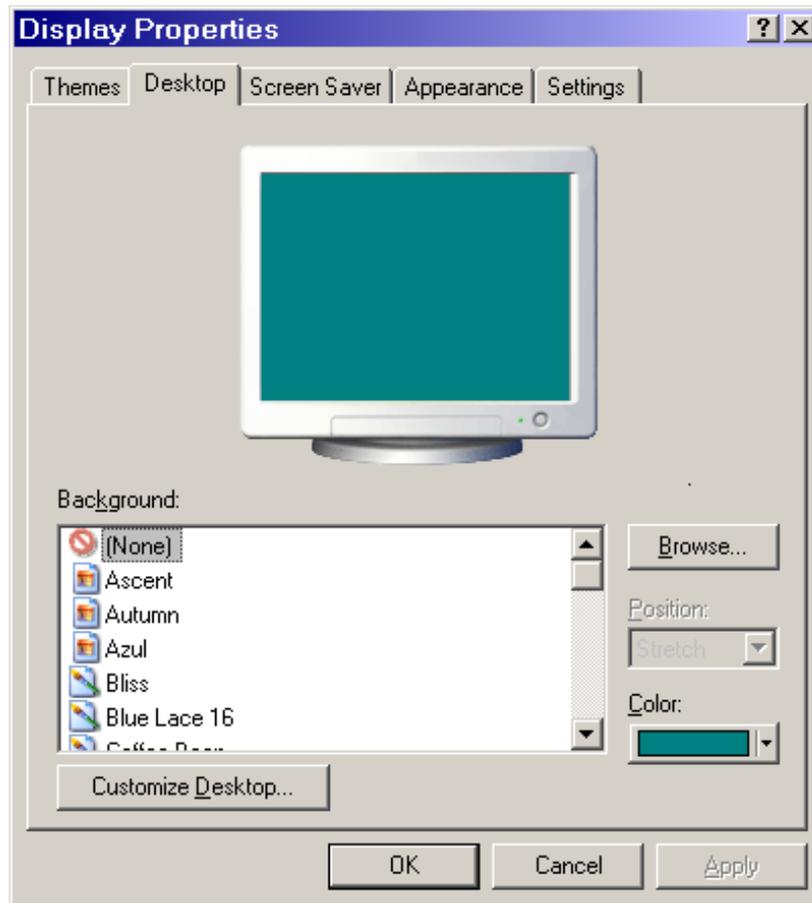


FIGURE 144. Display Properties window

2. Click on the Customize Desktop button.
3. The following window appears:

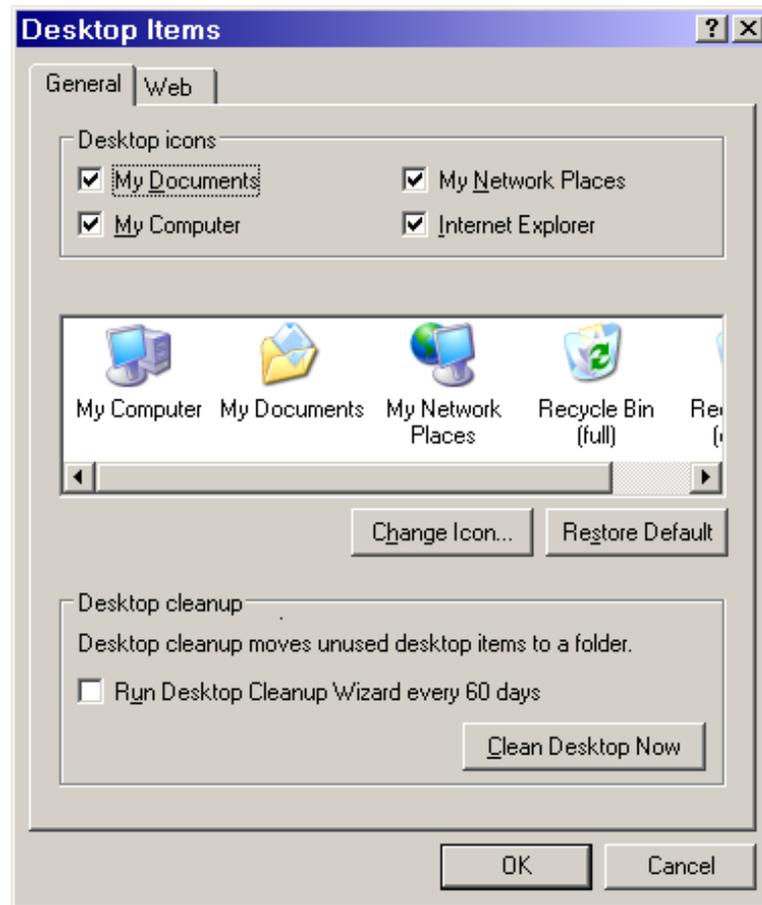


FIGURE 145. Desktop items window

4. Deselect the option “Run Desktop Cleanup Wizard every 60 days” if it is selected.
5. Click on the OK button. This returns you to the Desktop tab.
6. Click on the Apply button.
7. Once applied, proceed to the instructions in Section 13.10.3 “Screen saver”.

13.10.3 Screen saver

The actual screen saver selected is optional. For purposes of this example, the 3D Text screen saver will be shown.

1. From the Display Properties window, select the Screen Saver tab. The following window appears:

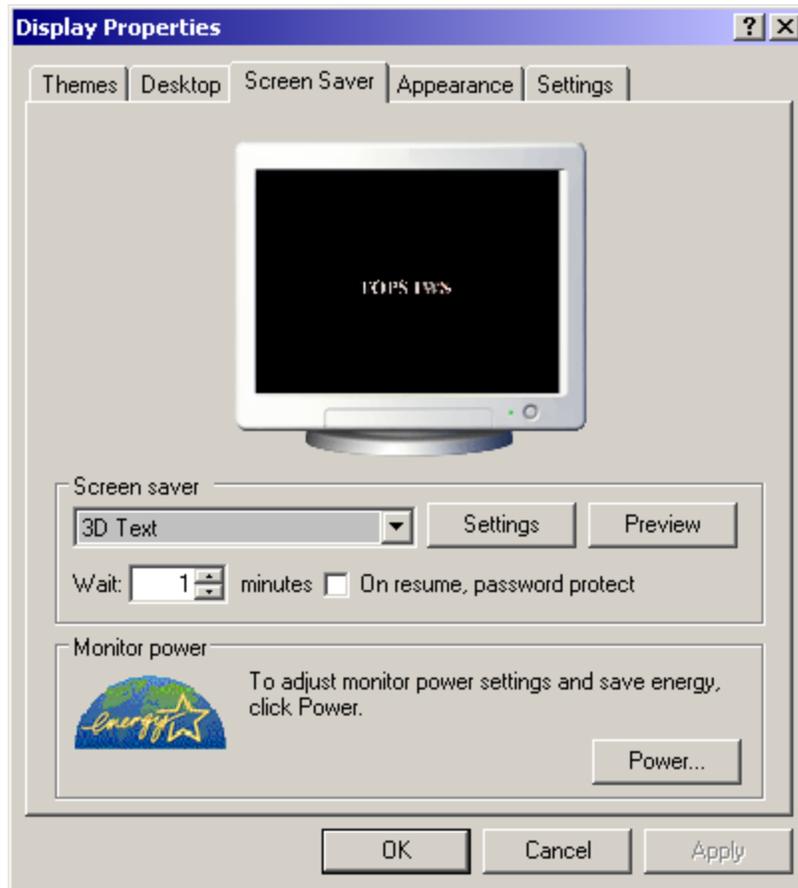


FIGURE 146. Screen saver display properties

Note 1: The screen saver display properties window may look slightly different depending upon the Microsoft XP Professional software used. OEM versions may appear slightly different than versions purchased off-the-shelf.

Note 2: No matter which screen saver is selected, verify that the box “On resume, password protect” is not selected. Otherwise, the operator must enter the administrator password to return to the IWS logon screen.

2. Click on the Settings button to customize the 3D Text screen saver.

3. The options available for the screen saver appear.
4. Click on the Display Settings button. The following window appears:

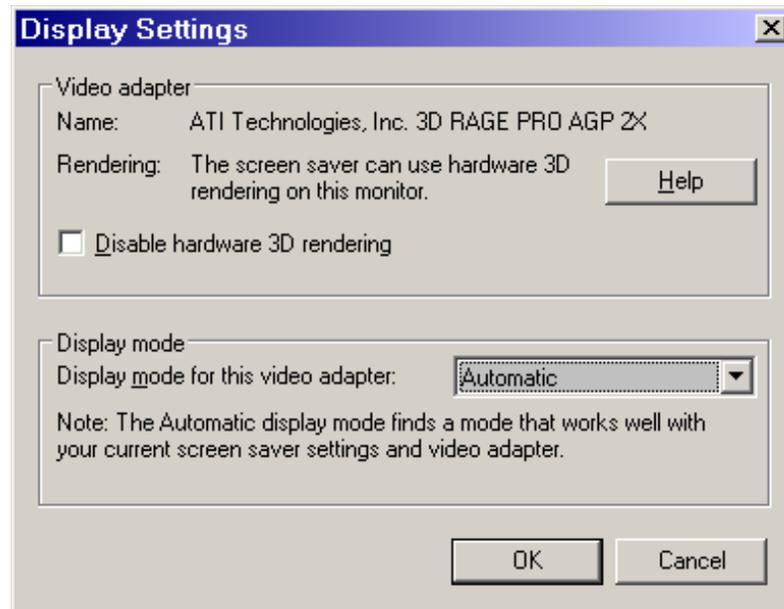


FIGURE 147. Display settings window

5. Ensure that the Display mode drop down box is set for Automatic. If it is not, use the drop down box to select that option.
6. After modifying that option (if required), click on the OK button to exit this screen and return to the 3D Text Settings window.
7. Select the “Custom Text” button and replace the Microsoft default with “TOPS IWS”.

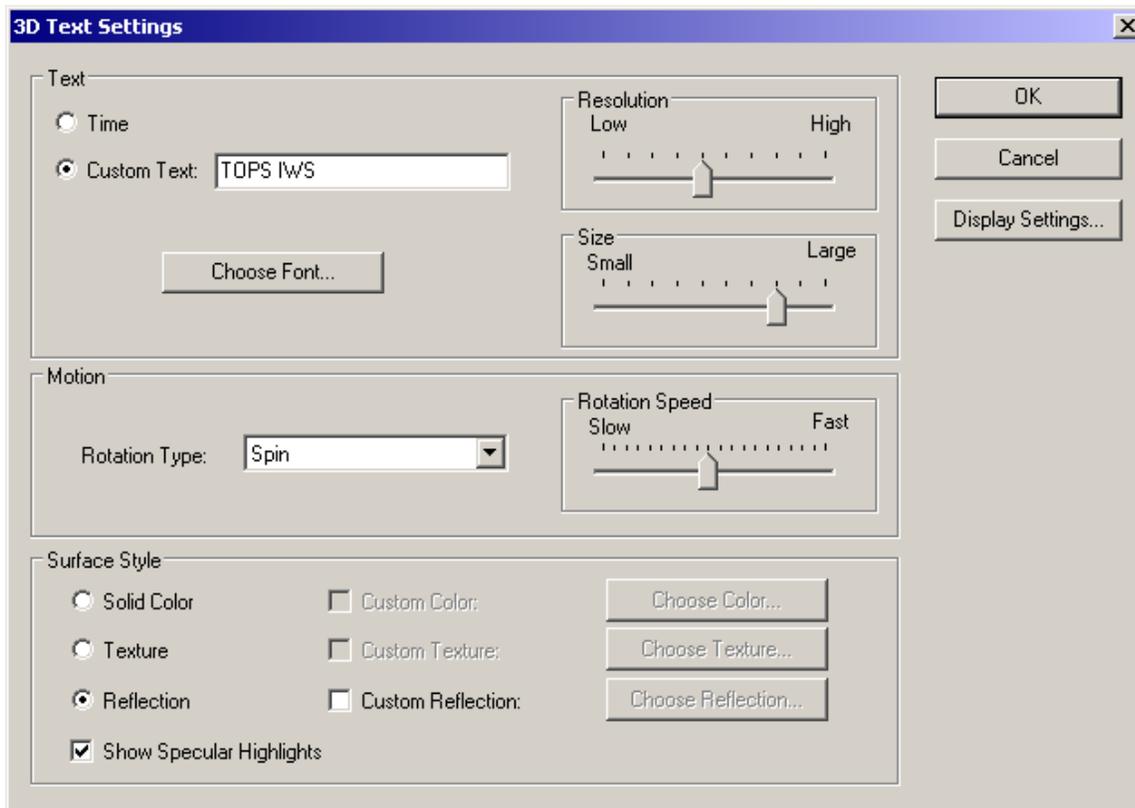


FIGURE 148. 3D Text Settings

8. After modifying that option, click on the OK button to exit this screen.
9. At the Display Properties window, click on the Apply button to apply the screen saver.
10. Once the new screen saver is applied, proceed to the instructions in Section 13.10.4 “Transition Effect”.

13.10.4 Transition Effect

From the Display Properties window, follow these steps to update the transition effects:

1. Select the Appearance tab. The following window appears:

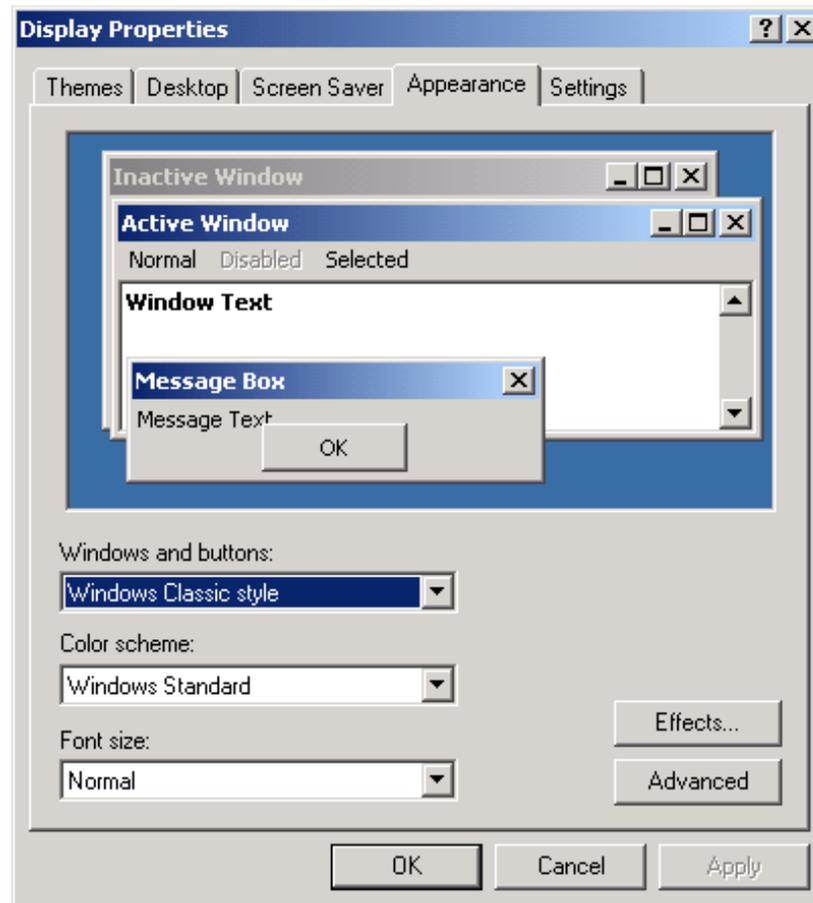


FIGURE 149. Effect window

2. Verify that “Windows Classic style” is selected for the Windows and buttons option.
3. Verify that “Windows Standard” is selected under the Color scheme.
4. Click on the Effects button.
5. The Transition effect is enabled by default.

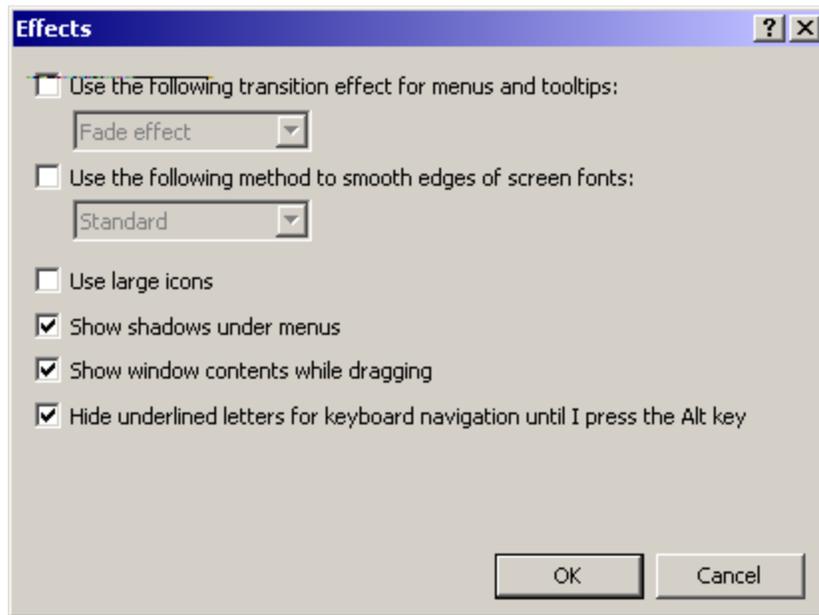


FIGURE 150. Transition effect disabled

6. Deselect the option “Use the following transition effect...”.
7. Click on the OK button.
8. This returns you to the Appearance tab.
9. Click on the Apply button.
10. Once the transition effects are disabled and applied, proceed to the instructions in Section 13.10.5 “Screen resolution: 640 x 480”.

13.10.5 Screen resolution: 640 x 480

By default, the IWS software runs in normal operation at 800 by 600 resolution. Users of monitors smaller than 15” may find it beneficial to use the 640x480 resolution. If you do not have a small monitor, skip this step.

Windows XP Professional defaults to a resolution of 800 by 600, so changes must be made to use the IWS at the lower resolution. In many cases, the slider bar showing the Screen resolution will not show the availability of 640 by 480 pixels. The Less side will show a minimum of 800 by 600. In order to make 640 by 480 available, click on the Advanced button. A screen similar to Figure 152 will appear; however, the title will depend upon the video card is installed in your PC.

To change the screen resolution, go to the Display Properties window, and follow these steps:

1. Select the Settings tab. The following screen appears:

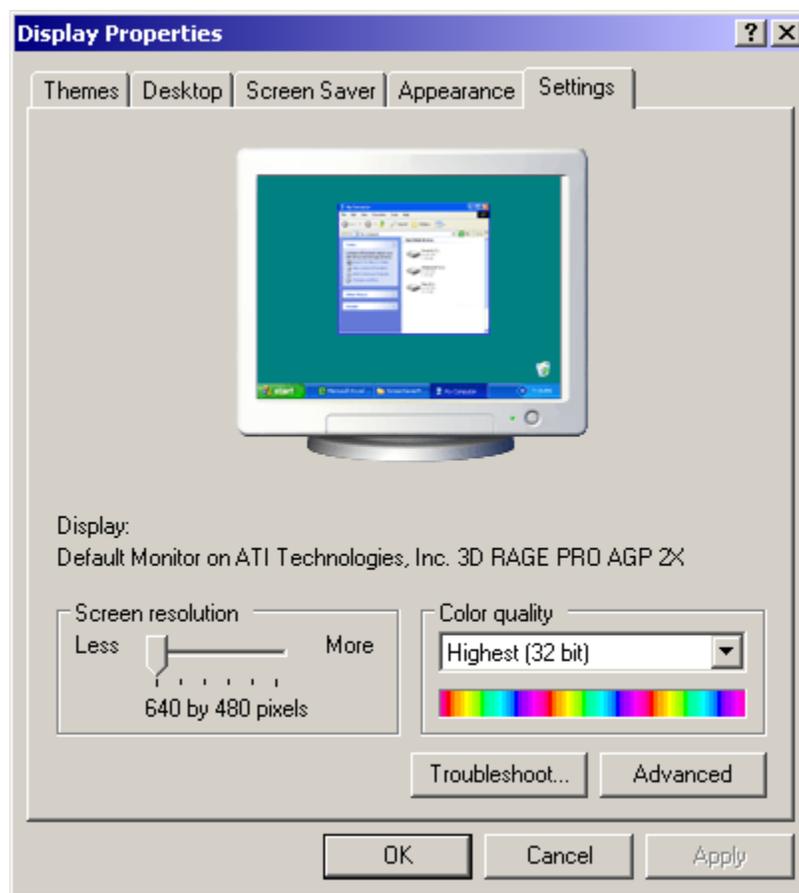


FIGURE 151. Settings tab

2. Click on the Advanced button to make 640 by 480 option available.

3. A screen similar to the following will appear.

Note: The title of the window depends upon the video card installed in your PC.

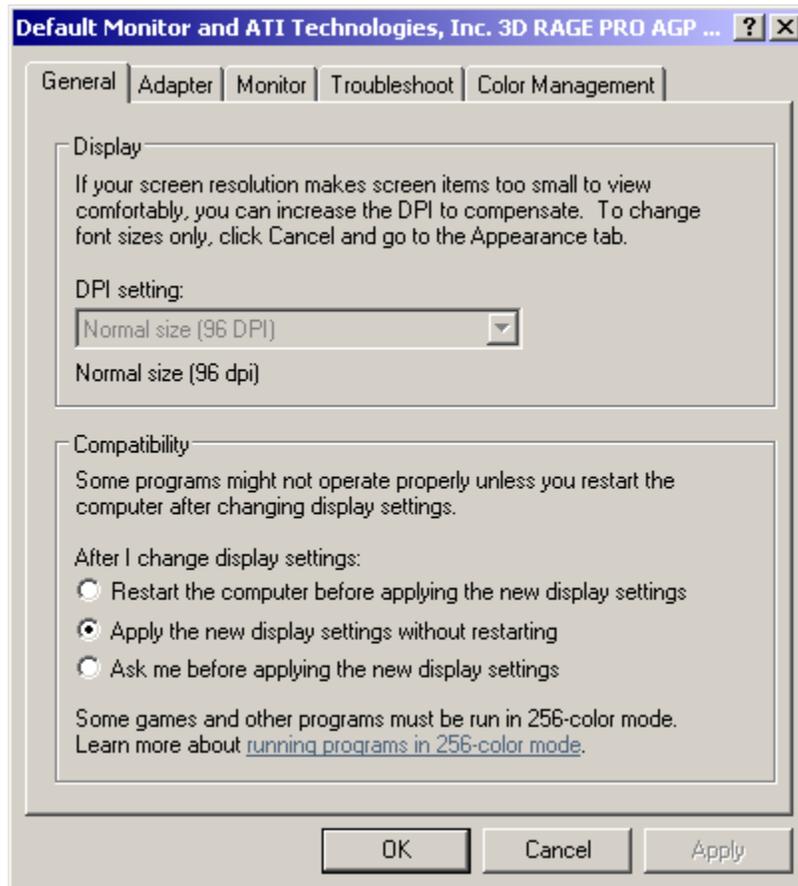


FIGURE 152. Advanced options

4. Click on the Adapter tab.
5. Depending upon the type of the video adapter installed in your PC, a window similar to Figure 153 will appear.



FIGURE 153. Adapter tab

6. Click on the List All Modes button to set the screen resolution.
7. A window similar to Figure 154 will appear:

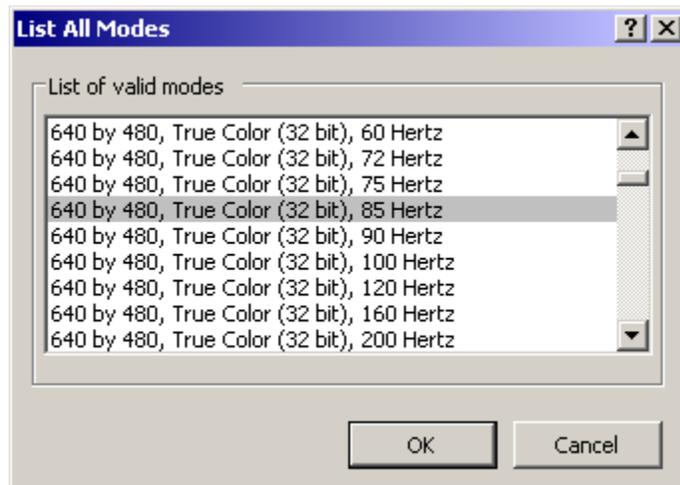


FIGURE 154. List All Modes window

8. Assuming that the video adapter in your PC supports 640 by 480, there should be a list of different types of colors supported (8, 16, or 32 bit) with different monitor refresh rates.
9. For IWS operation, we suggest using the highest available color support available, “True Color (32 bit)”. Lower levels may work acceptably for IWS applications, but 3rd party or Web pages may not appear properly without the higher color availability.
10. For the refresh rate, we suggest that you match the refresh rate that was selected when this window was first opened. For this PC, that was the “800 by 600, True Color (32 bit), 85 Hertz”. That is why 85 Hertz is selected for the 640 by 480 above.
11. After the proper selection has been made, click on the OK button to return to the previous screen.
12. Click on the Apply button to apply this new resolution to the system. If a window appears asking whether to keep the new resolution or not, click the Yes button.

13.10.6 Creating the IWS theme

The changes that were made after the Windows Classic theme was applied have modified the settings. To review the changes and to save them as the IWS theme, follow the instructions below:

1. From the Display Properties window, click on the Theme tab. This shows the “Modified Theme” appearing in the Theme drop down list.

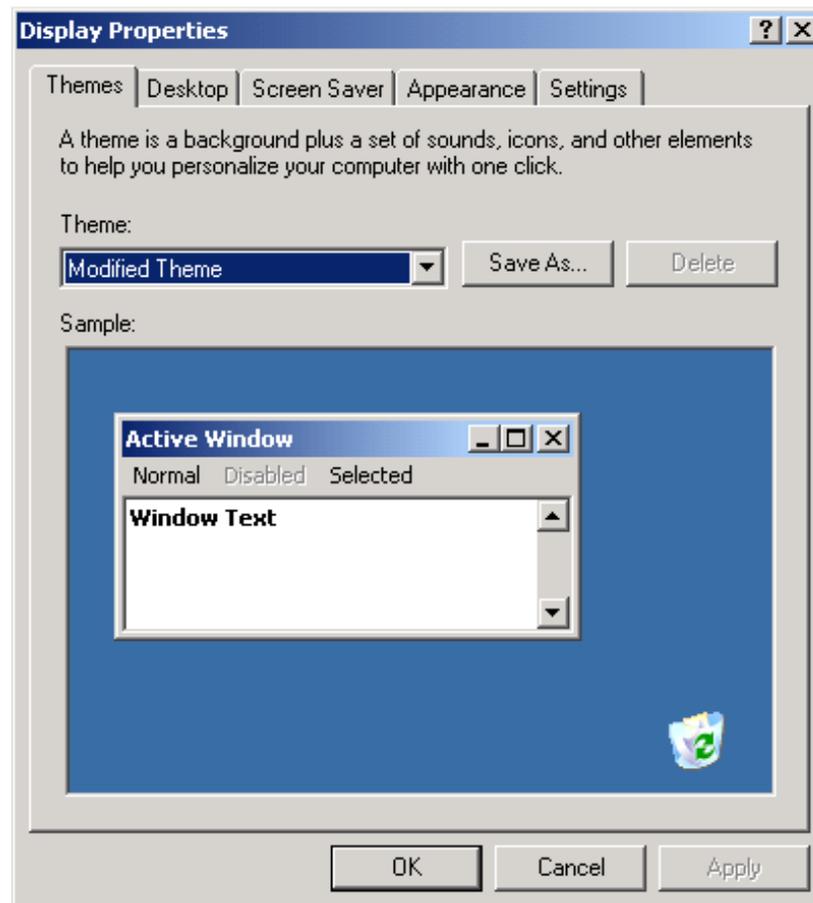


FIGURE 155. Themes tab

2. This modified theme now includes all of the proper options for IWS. To save these options out to a file, click on the Save As button.
3. The following window will appear:

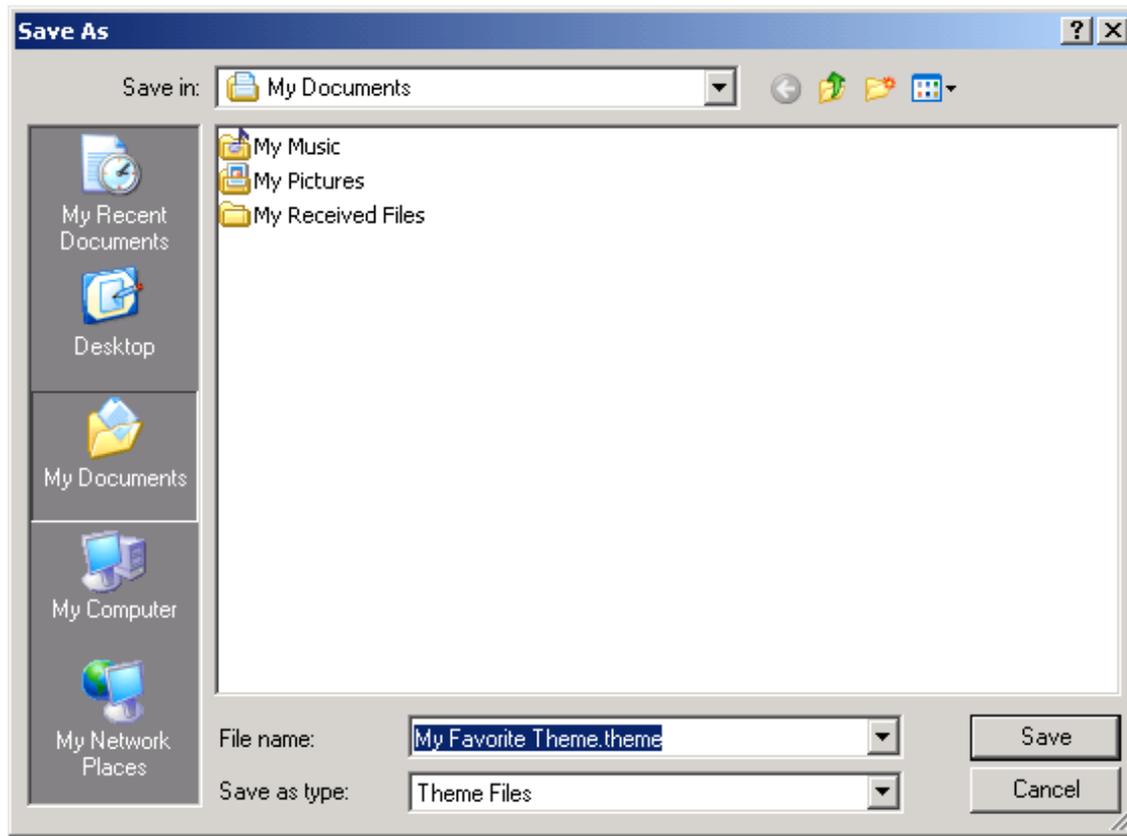


FIGURE 156. Saving the new theme

4. Click on the Save button to accept the suggested file name and location.
5. The system shows that “My Favorite Theme” is the selected one as in Figure 157.

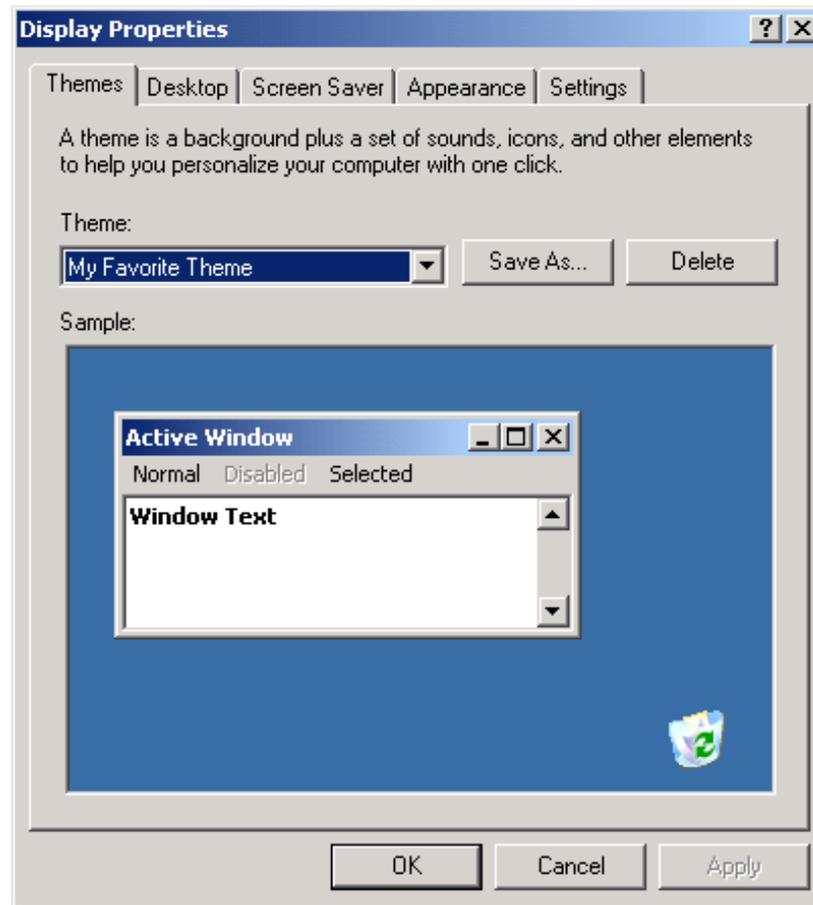


FIGURE 157. My Favorite Theme

6. Click on the OK button to exit.

13.11 Power Scheme Verification

This check is only to be performed **AFTER** the installation of IWS software. If you have not installed IWS software yet, do not attempt to verify the following as it does not exist.

After Windows XP Professional was initially released, Microsoft changed the way that some of its internal Power Scheme functions worked. This broke an installation utility invoked by the IWS Configuration Installation.

As a result of this change, the Power Scheme created for IWS, literally the “IWS” power scheme, may not have all of the options set properly. If the options are not set properly, you may notice that the system powers itself down into a hibernation mode. To prevent this from occurring, verify the following:

1. Bring up the Start Menu,
2. Select Settings.
3. Select Control Panel.
4. Click on Display. The Power Options window will appear:

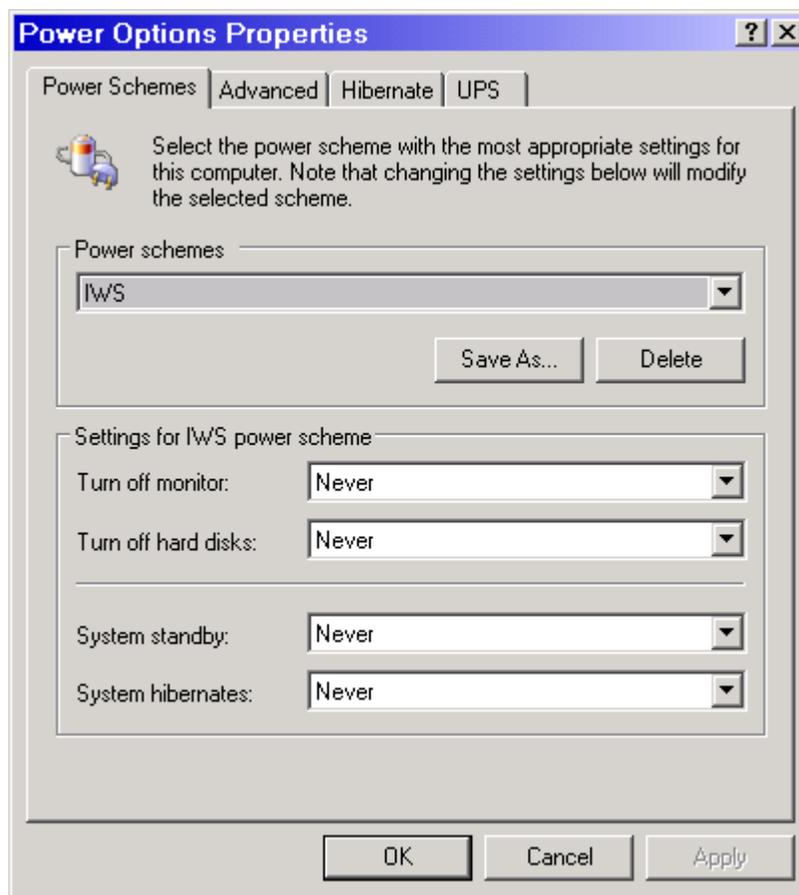


FIGURE 158. Power Options Properties window.

-
5. Under the Power schemes drop down, make sure that “IWS” is selected if it is not already.
 6. Verify that all four options of the IWS power scheme are set to “Never”. If any of them are not, use the appropriate drop down and select “Never”. If any changes were required, click on the Apply button.
 7. Click on the OK button to exit.

14.0 Appendix B: DMS Gateway Driver installation

The following sections are broken out by the following:

Category	Driver Name	Page
Quadron	Quadron qX25	page 396
	Quadron qCF	page 405
IBM ARTIC Support	N/A	page 413
ARTIC Driver	PCI ARTIC Card	page 419
	ISA ARTIC Card	page 425

Note 1: For installing Audio card drivers, please refer to Appendix C on page 445.

Note 2: For installing Keyboard drivers, please refer to Appendix D on page 491.



QUADRON qX25 and qCF Runtime MUST be installed prior to loading any ARTIC driver.

IBM ARTIC Support MUST be installed prior to loading the driver for either the PCI or ISA ARTIC card.

14.1 Quadron qX25

Installing Quadron qX25 Runtime Support for Windows 2000 and ARTIC Adapter Cards:

1. Insert the IWS CD into the CD ROM drive.
2. Bring up a Windows Explorer by going to the Start Menu, selecting Run and typing: explorer.
3. Select the CD ROM drive (probably D:).
4. Select drivers.
5. Select QUADRON (X.25).
6. Select qX25.
7. Click on setup.exe. The following window will briefly appear during start up:

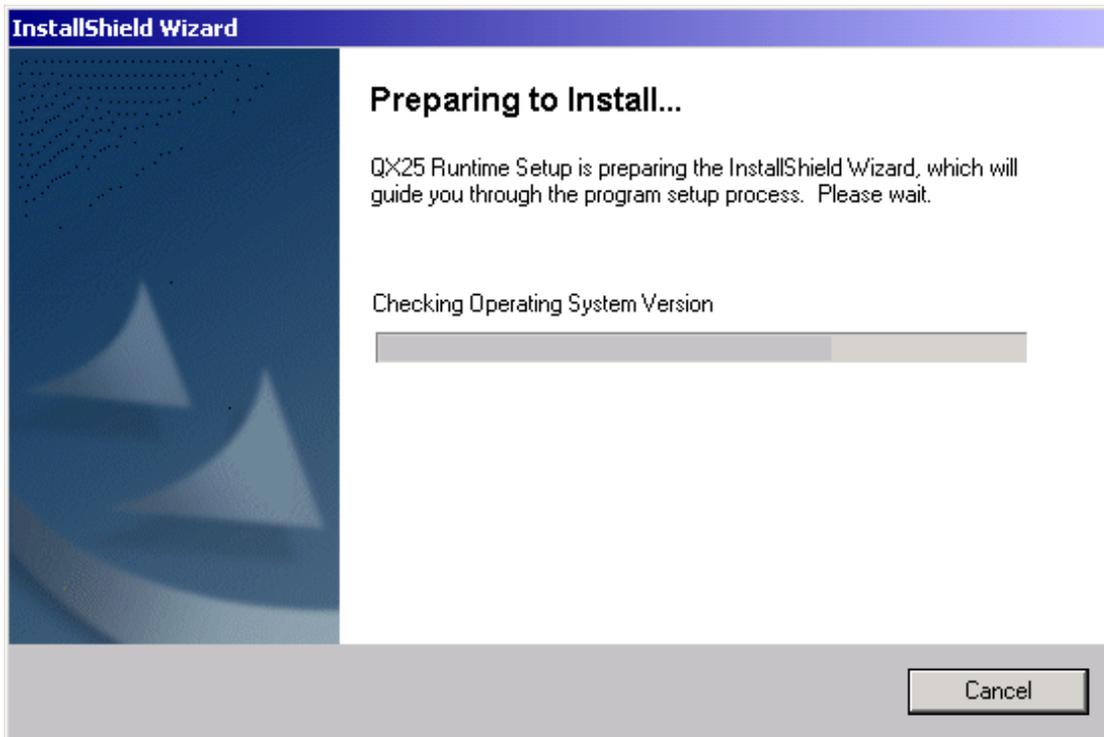


FIGURE 159. InstallShield Wizard

8. When this has finished, the Welcome screen appears:

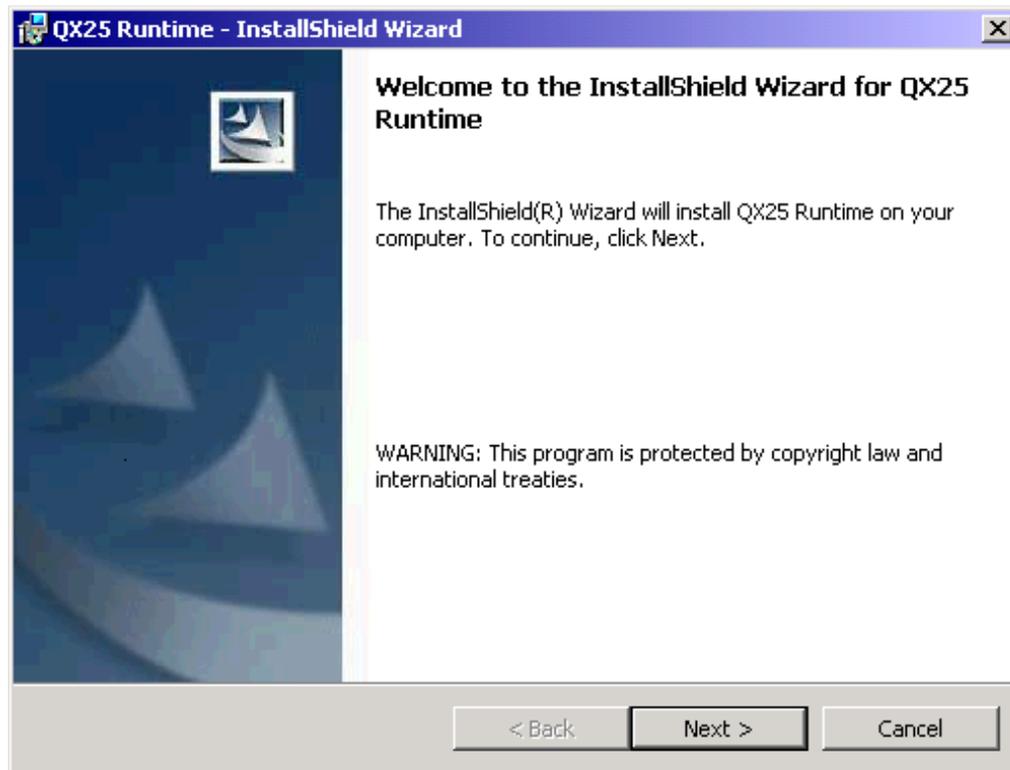


FIGURE 160. Welcome screen for the QX25 Runtime

9. Click Next to continue.

10. The InstallShield Wizard appears as in Figure 161.

Note: We do not want to accept the default directory that is provided.

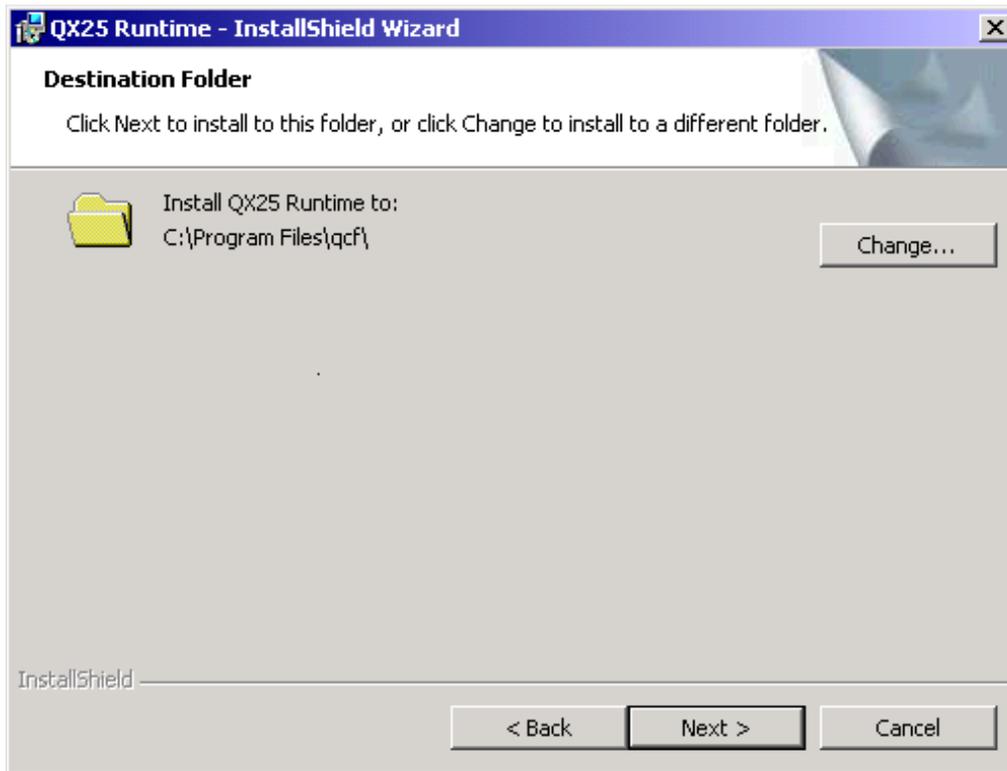


FIGURE 161. QX25 Runtime window

11. Click on Change.

12. The following Destination Folder window appears as in Figure 162.

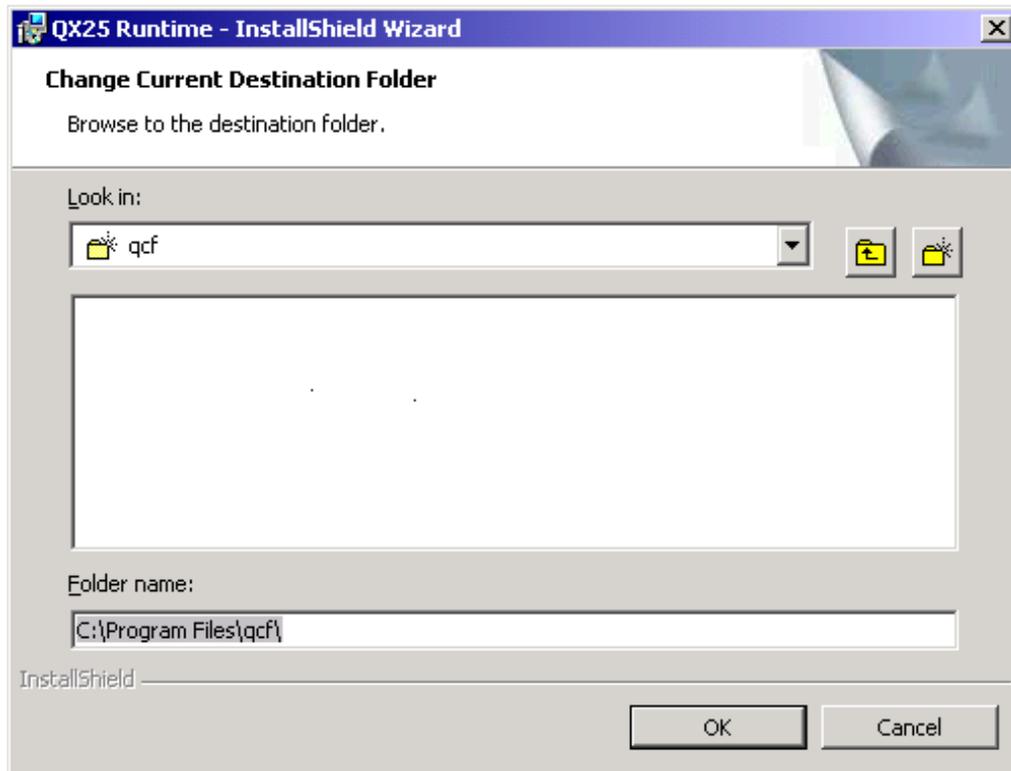


FIGURE 162. Change destination folder window

13. The existing default directory is located in the Folder name prompt.
14. Replace the existing directory with c:\qcf\

15. The window should look like Figure 163.

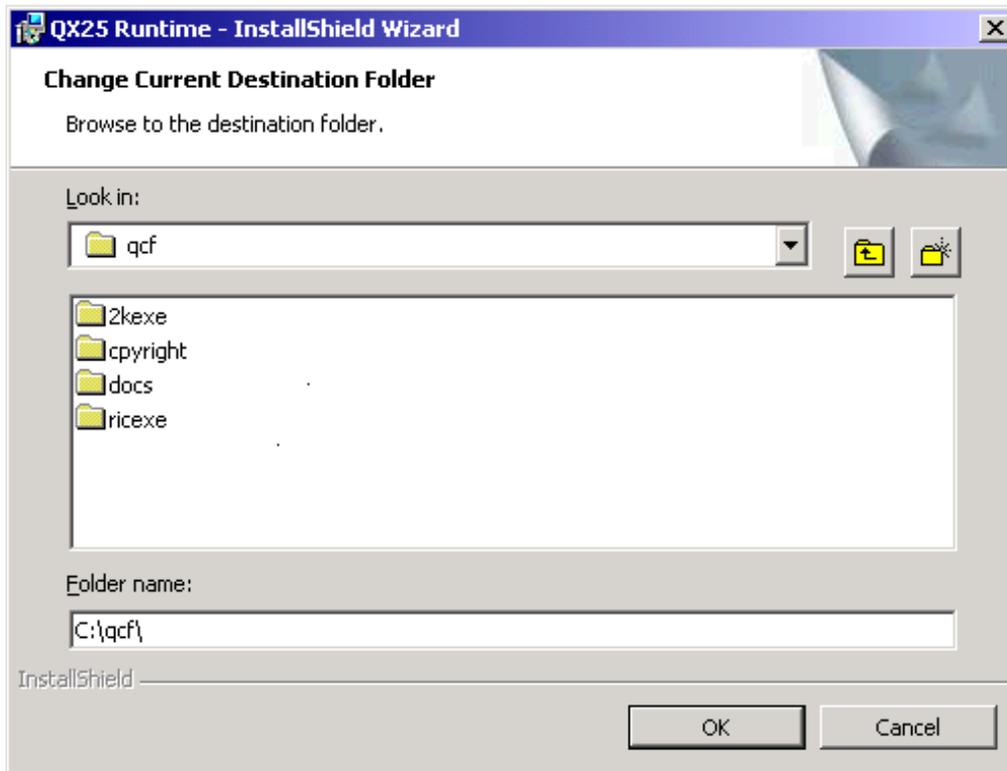


FIGURE 163. Changing destination folder

16. Click OK to save the new directory name.

17. The Destination Folder window appears again, but this time, with the proper directory as shown in Figure 164.

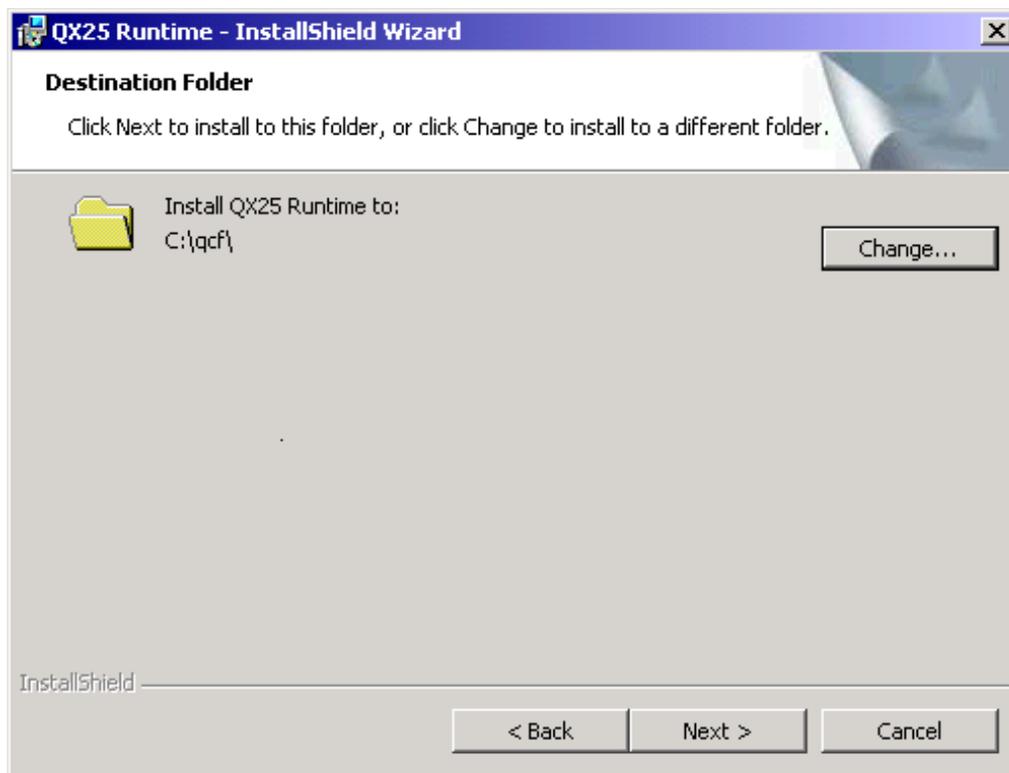


FIGURE 164. Updated destination folder

18. Click Next to continue.

19. The QCF Runtime provides a summary window before it begins the installation.

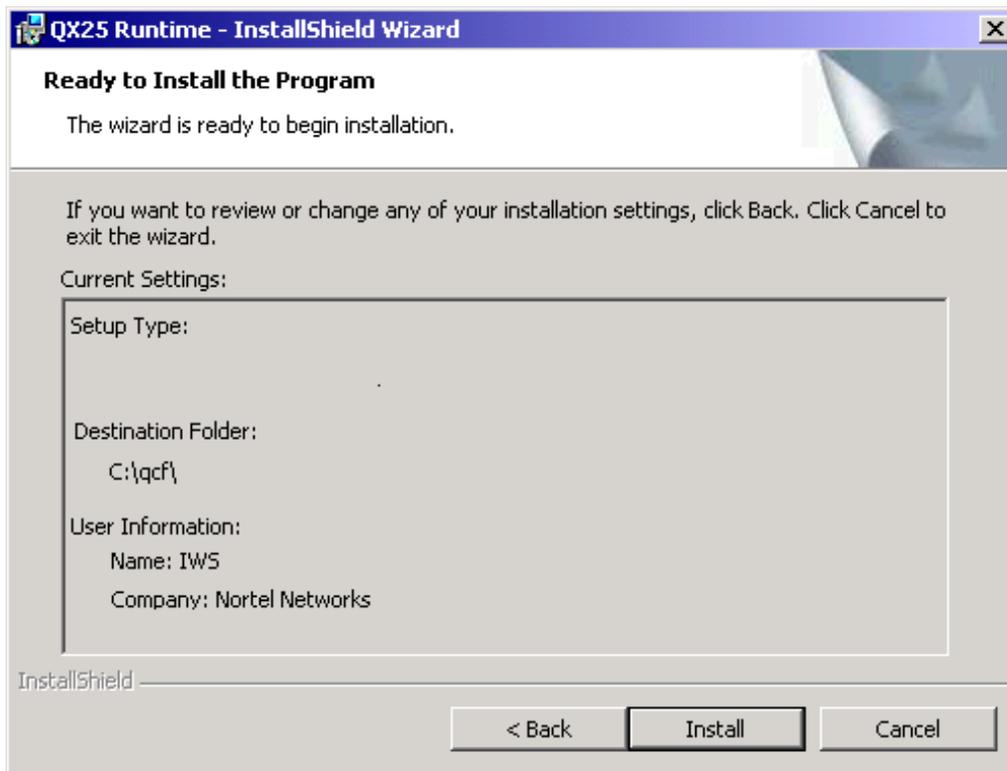


FIGURE 165. QCF Runtime summary window

Note: The User Information in Figure 165 is based upon the datafill entered during the Windows XP Professional installation.

20. Click on Install to begin.

21. The window in Figure 166 appears as the install is in progress.

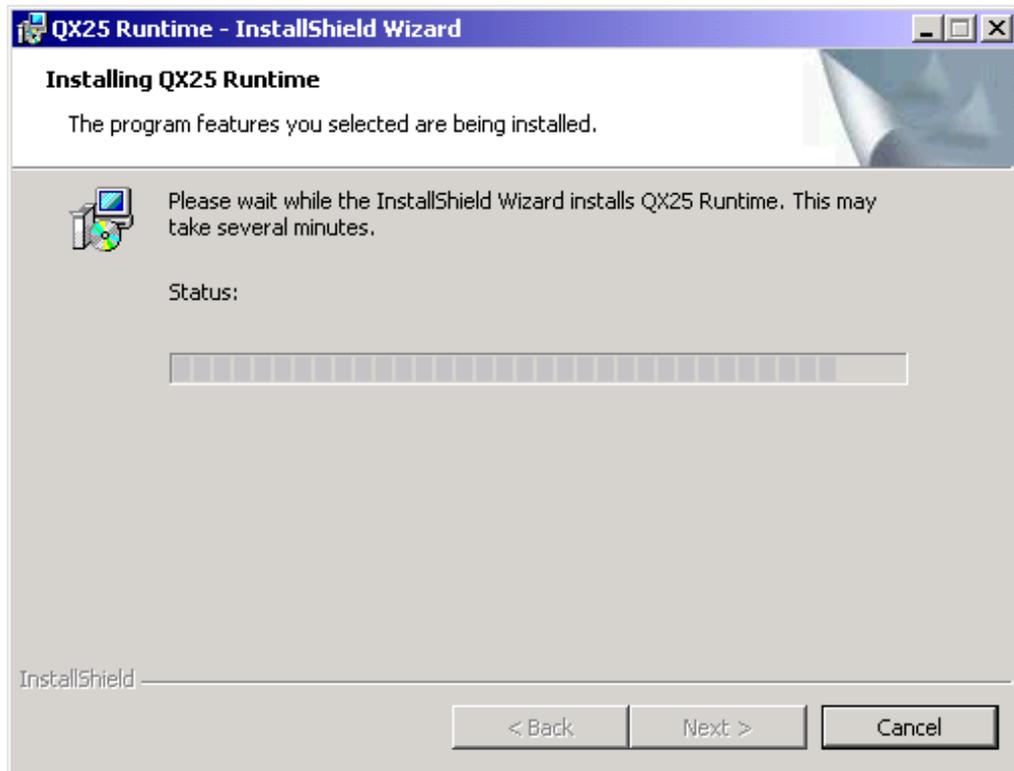


FIGURE 166. Installing QX25 Runtime window

22. Once the installation is complete, the following screen will appear:

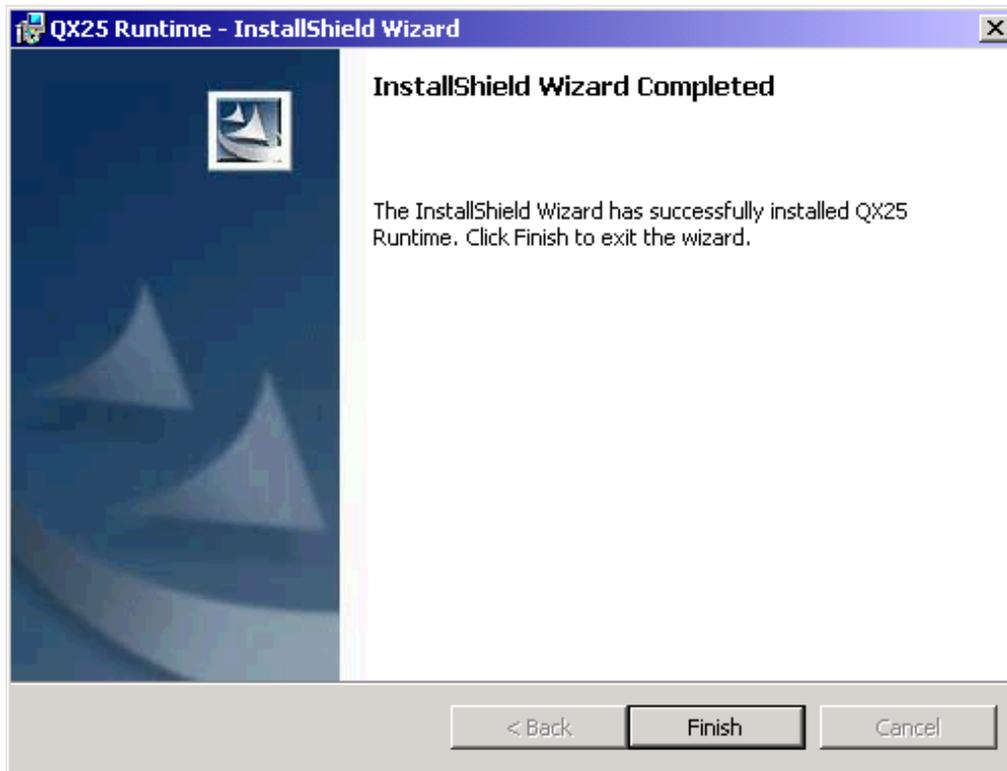


FIGURE 167. InstallShield completed

23. Click Finish to exit.

24. A warning box appears requesting you to reboot your system.

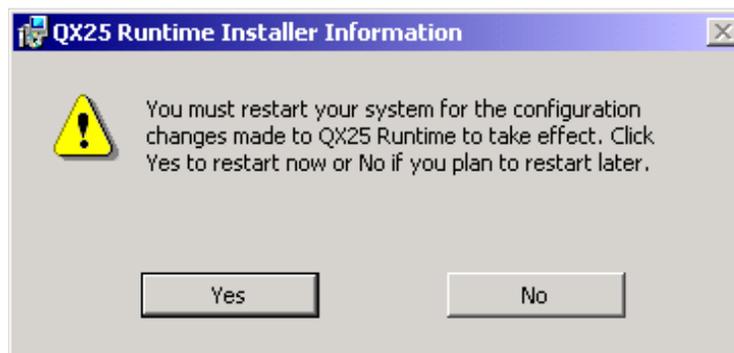


FIGURE 168. Reboot request

25. Click Yes to reboot the machine.

Note: A reboot of the machine is required to complete the installation.

14.2 Quadron qCF

To install the Quadron qCF Runtime Support for Windows 2000 and ARTIC Adapter Cards, please following the instructions below:

1. Insert the IWS CD into the CD ROM drive.
2. Bring up a Windows Explorer by going to the Start Menu, selecting Run and typing: explorer.
3. Select the CD ROM drive (probably D:).
4. Select drivers.
5. Select QUADRON (X.25).
6. Select qCF.
7. Click on setup.exe. The following window will briefly appear during start up:

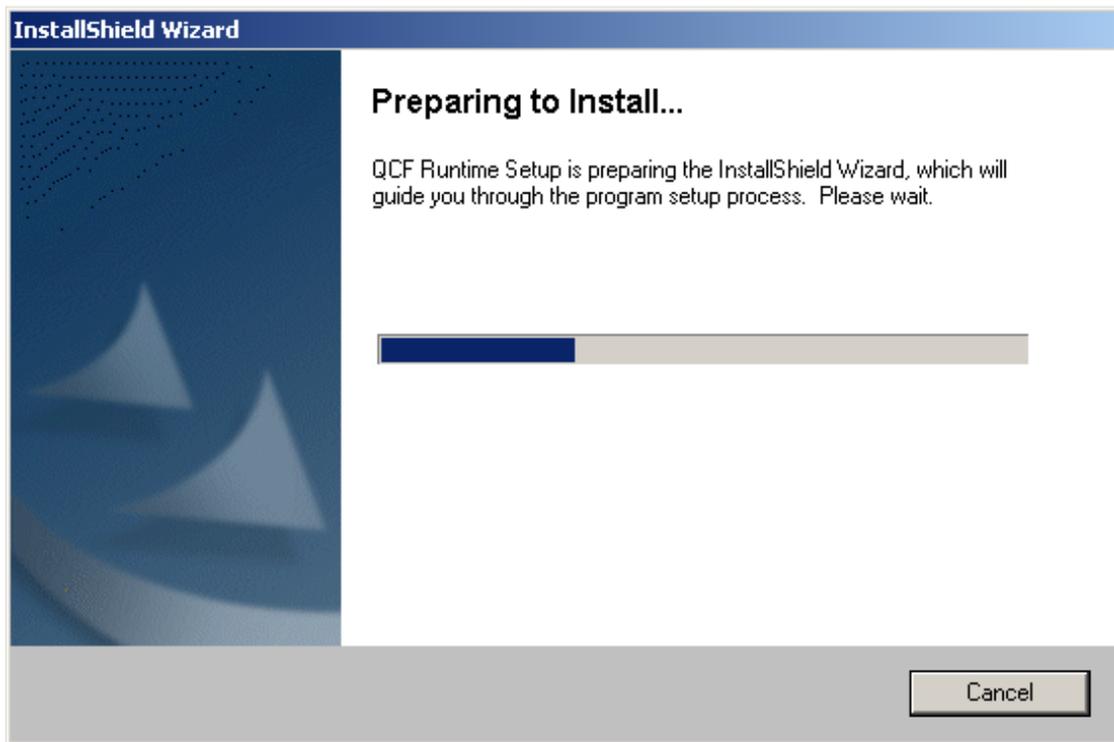


FIGURE 169. InstallShield Wizard window

8. When this has finished, the Welcome screen appears as in Figure 170:

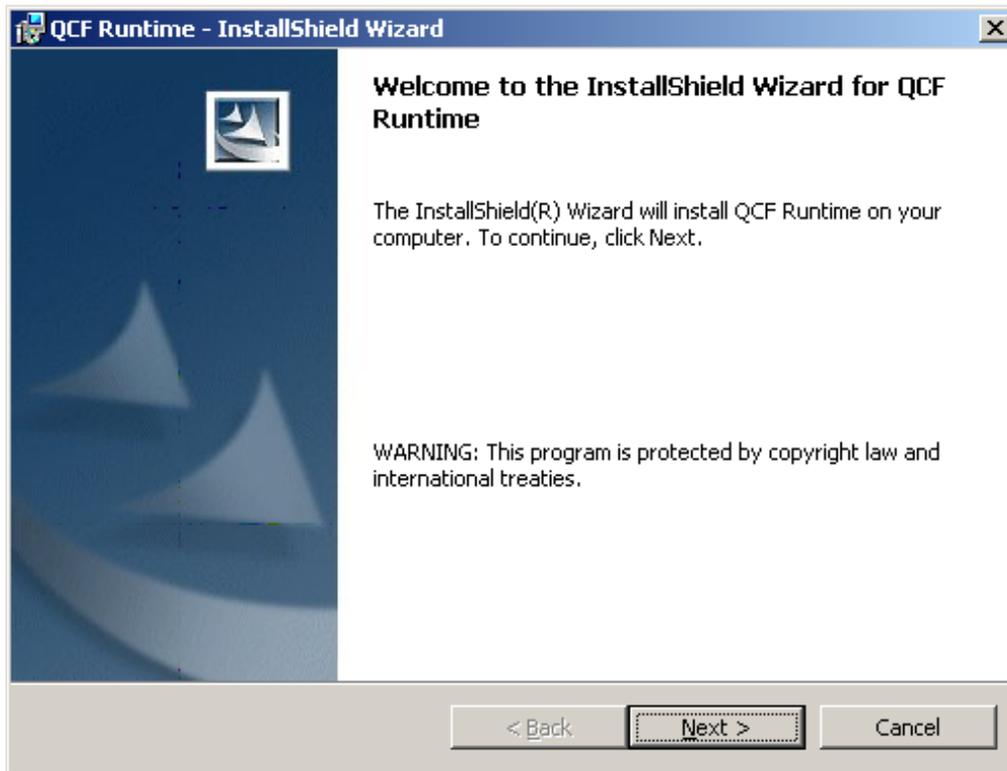


FIGURE 170. InstallShield Wizard Welcome window

9. Click Next to continue.

10. The Destination Folder window will appear.

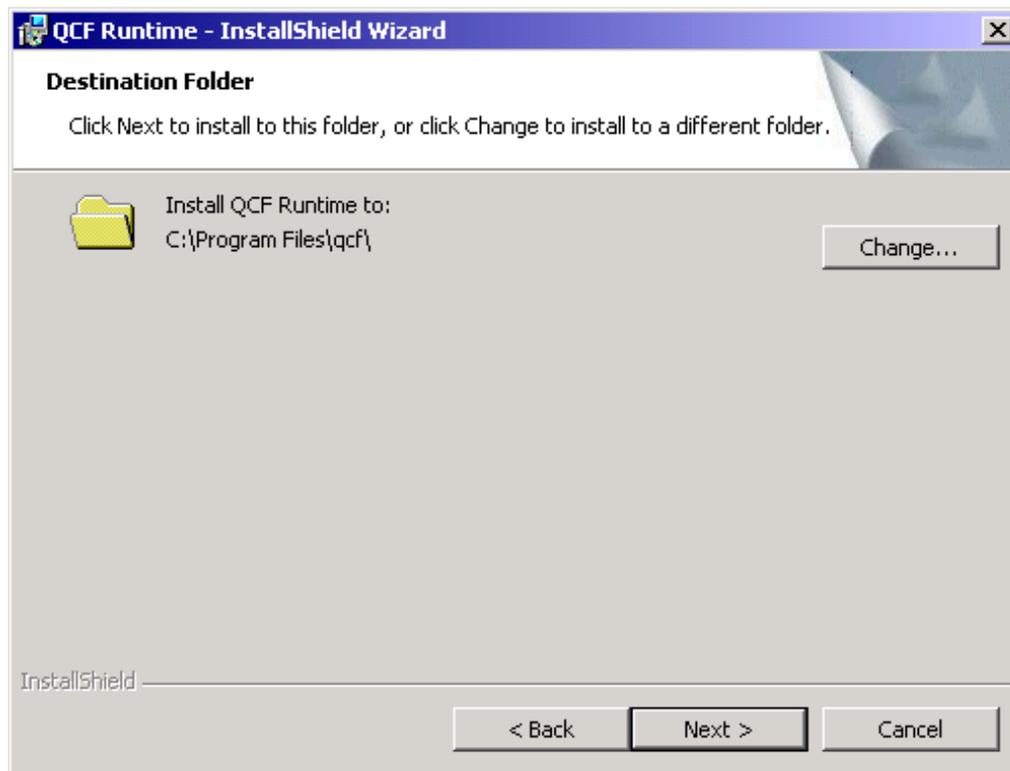


FIGURE 171. Destination Folder window

11. Click on Change.

12. The existing default directory is located in the Folder name prompt.
13. Replace the existing directory with c:\qcf\ so that it looks like Figure 172.

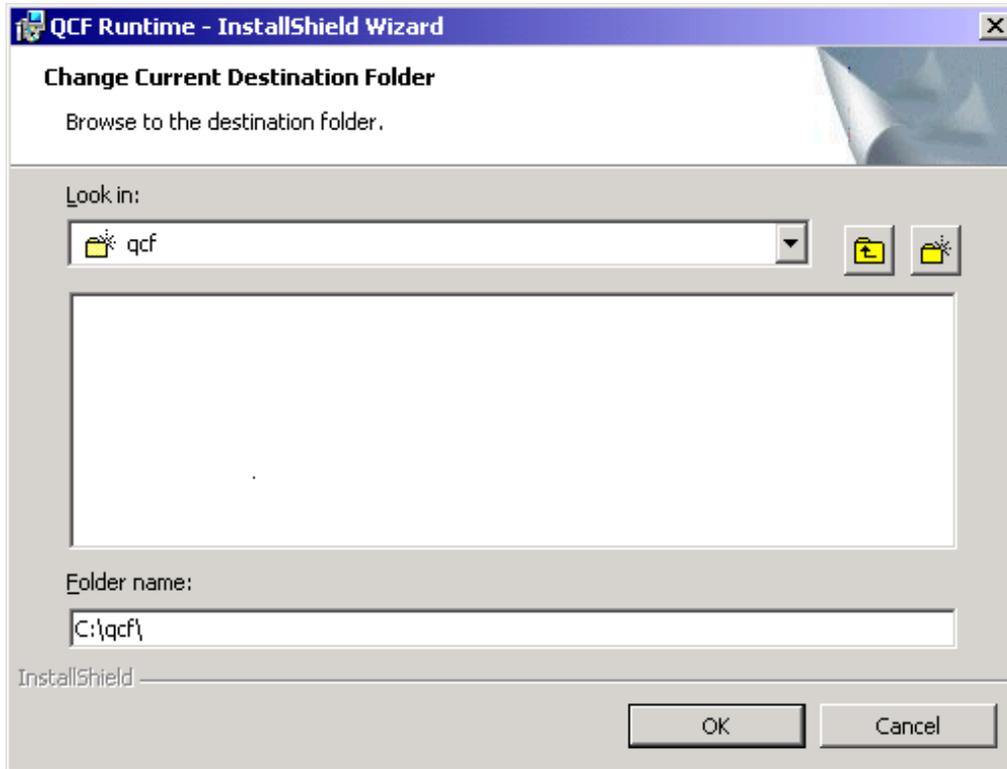


FIGURE 172. Changed destination

14. Click OK to save the new directory name.

15. The Destination Folder window appears again, but this time, with the proper directory as in Figure 173.

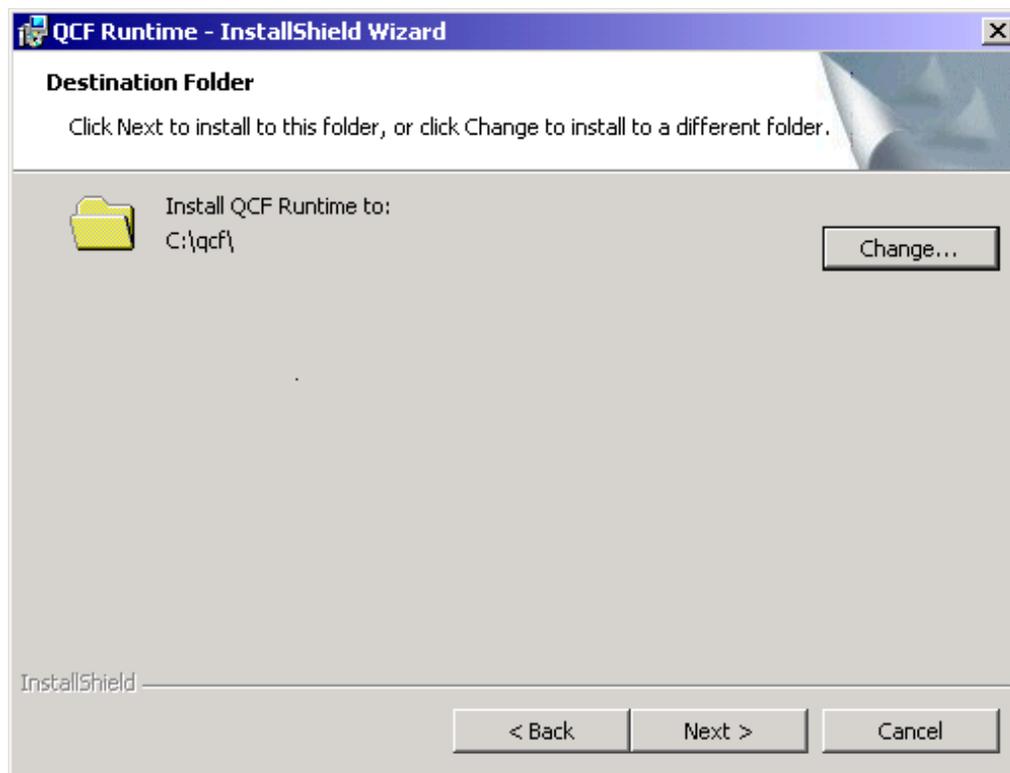


FIGURE 173. Updated Extermination Folder window

16. Click Next to continue.

17. The QCF Runtime provides a summary window before it begins the installation.

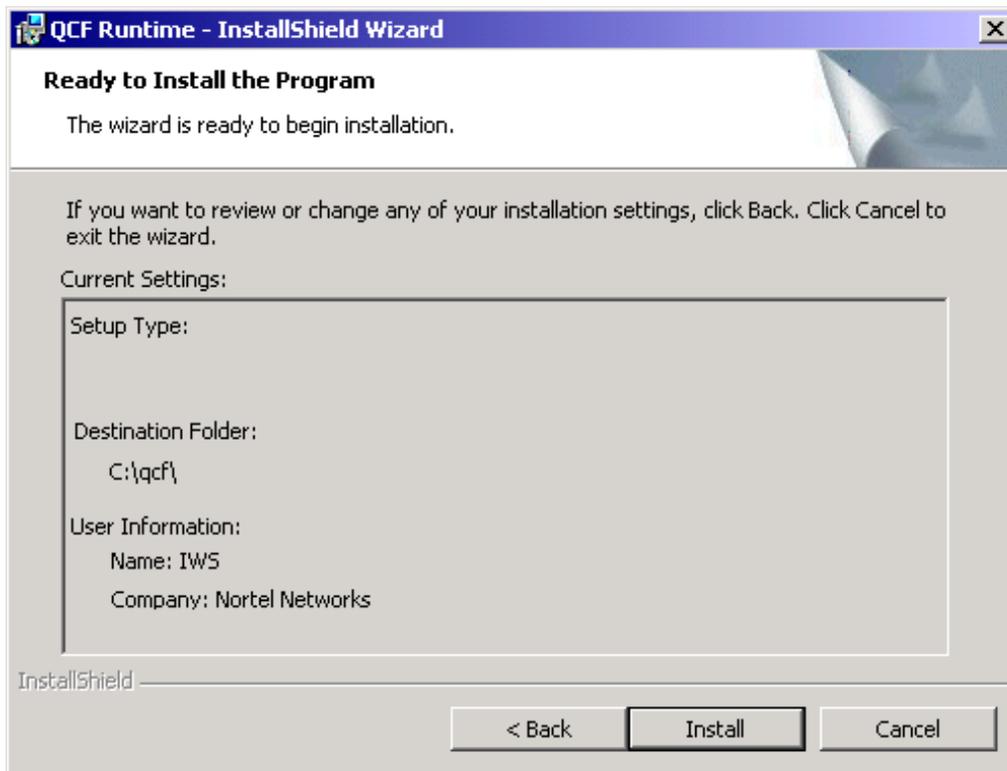


FIGURE 174. QCF Runtime summary window

Note: The User Information in Figure 174 is based upon the datafill entered during the Windows XP Professional installation.

18. Click on Install to begin

19. The window in Figure 175 appears as the install is in progress.



FIGURE 175. Installing QCF Routine window

20. When the installation is complete, the following screen will appear:

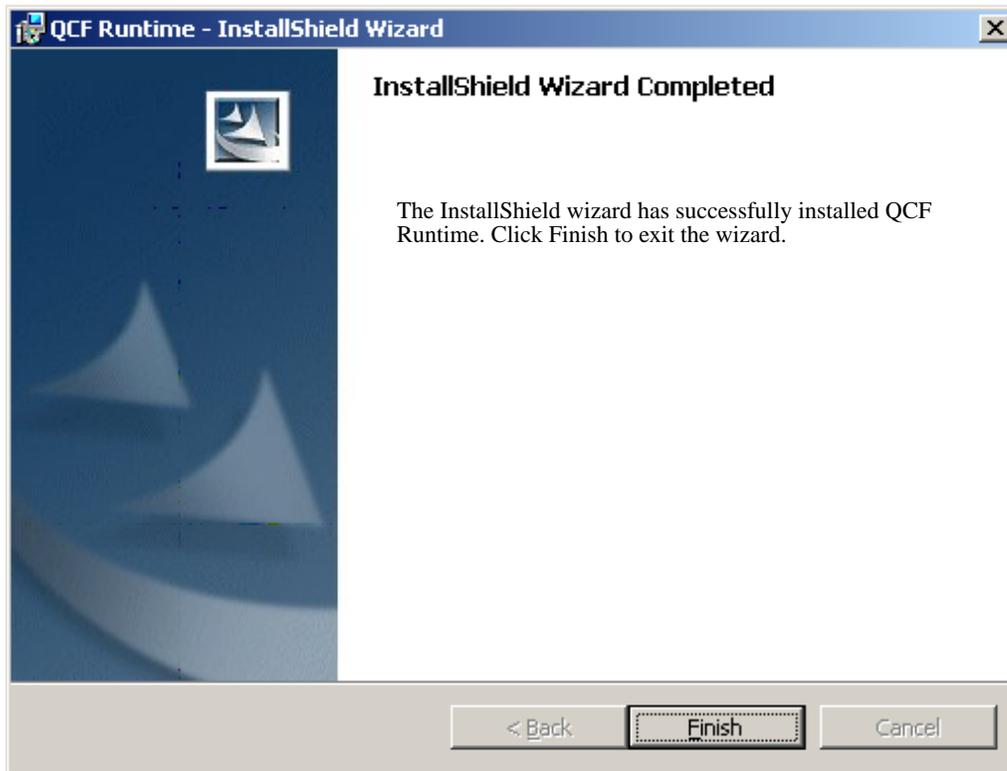


FIGURE 176. InstallShield Wizard Completed window

21. Click Finish to exit.
22. The window in Figure 177 appears.

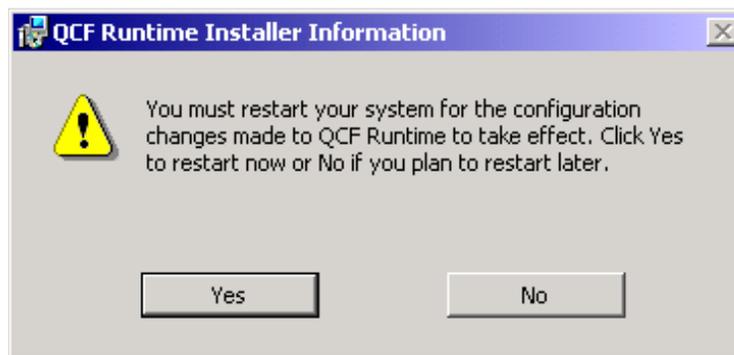


FIGURE 177. Reboot request window

23. Click Yes to reboot the machine.
Note: A reboot of the machine is required to complete the installation.

14.3 Installing Device Driver for the IBM ARTIC Support

The Quadron software contains the driver required to communicate with the IBM ARTIC card.

Note: The Quadron Runtime software **MUST** be installed prior to installing ARTIC Support.

The device driver for the IBM ARTIC Support comes in a self-extracting zip file named w2k101w.exe. Please follow the steps listed below:

1. Bring up a DOS window
2. Change your directory to:
c:\qcf\2kexe
3. Create a temporary directory for the extracted files by typing:
“w2k101w.exe /D c:\temp”
This will leave all the setup files in the c:\temp directory.
4. Change to that directory and type setup.exe.
5. The screen appears as in Figure 178:

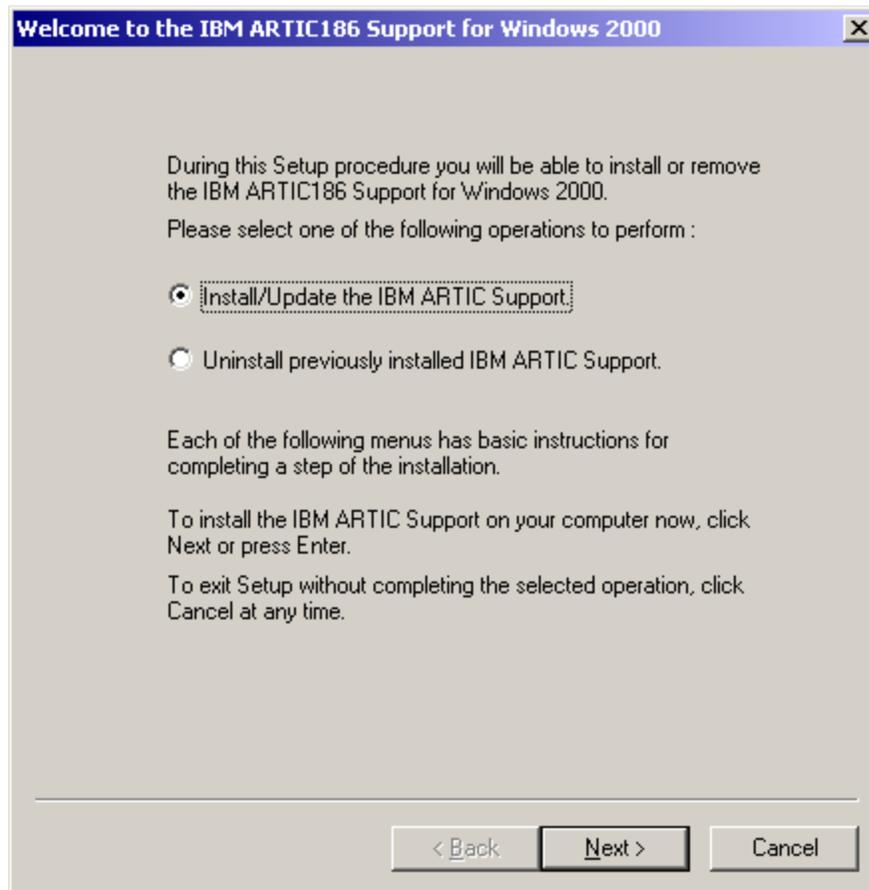


FIGURE 178. Welcome to the IBM ARTIC Support screen

6. Select the option to “Install/Update the IBM ARTIC Support”.
7. Click Next.
8. The Where to install? window appears as in Figure 179.

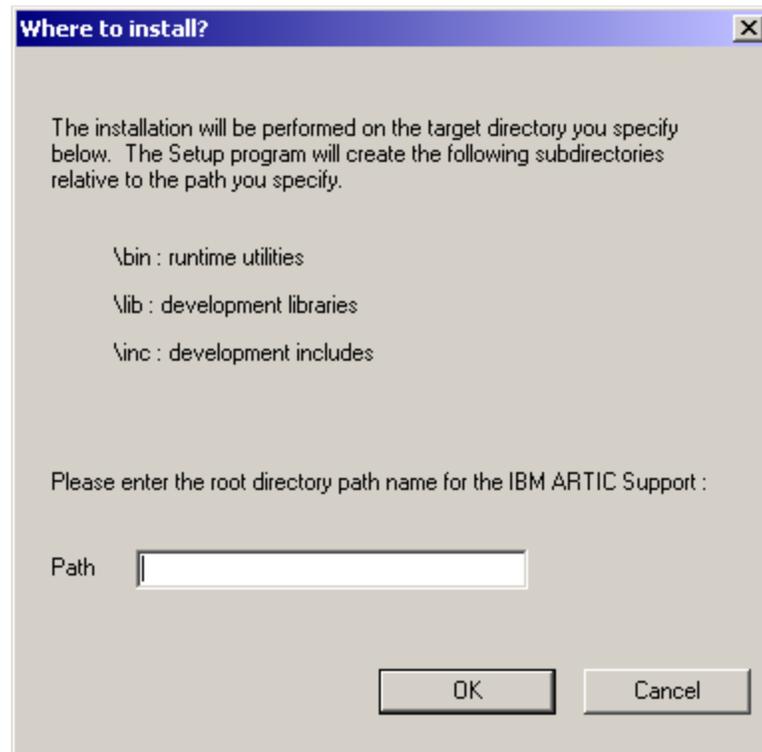


FIGURE 179. Where to install? screen

9. Type the directory name into the Path block:
c:\qcf
10. Click the OK button.

11. The IBM Software License Agreement window should appear.

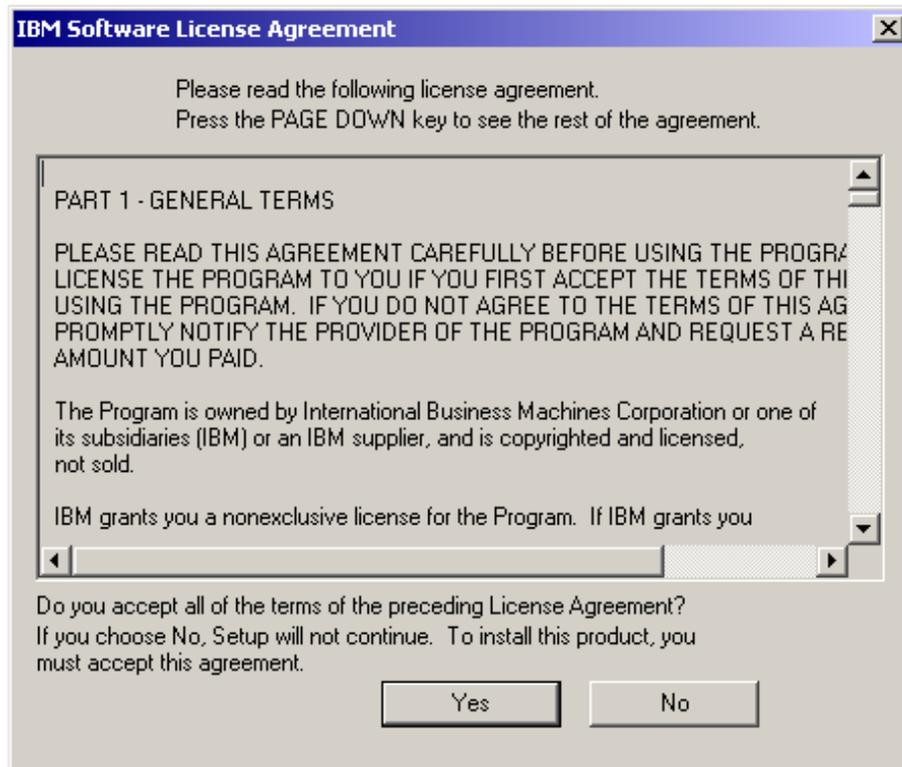


FIGURE 180. IBM Software License Agreement window

12. Read the agreement and then click Yes to accept and proceed.

13. The Complete Install window appears.

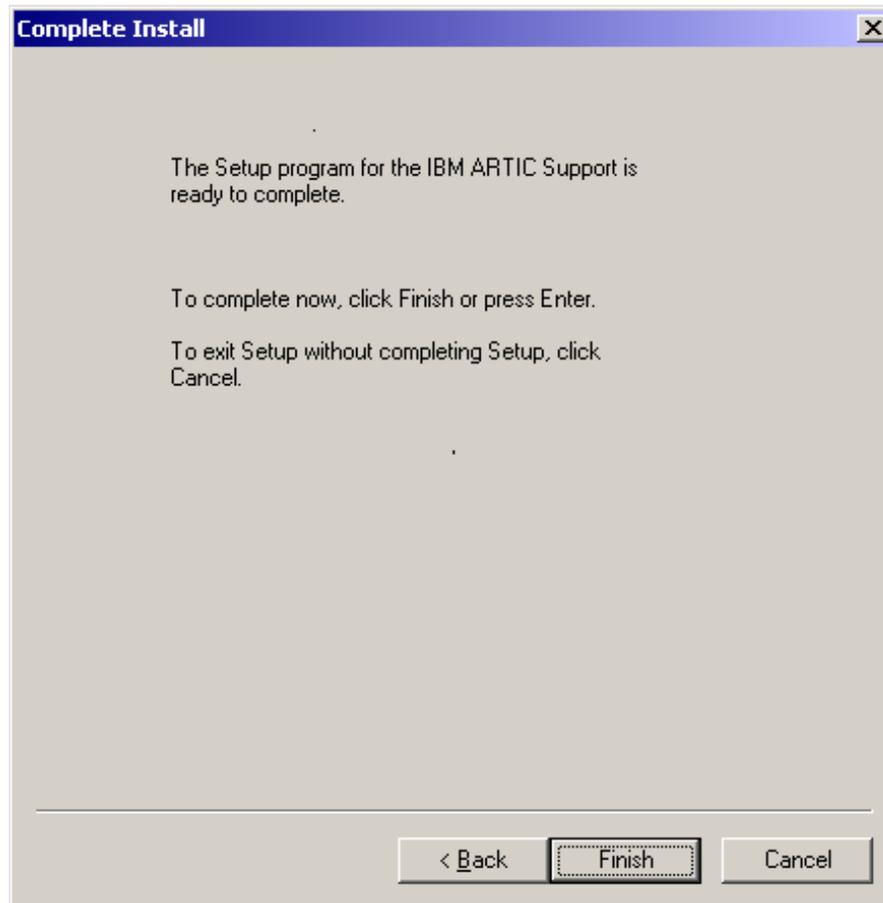


FIGURE 181. Complete Install window

14. Click on Finish to install the driver software. If the installation is successful, the following Success window will appear.



FIGURE 182. Success window

15. Click the OK button.

16. The Systems Setting Change window appears.

Note: It is necessary to reboot the computer for all of the new settings to take effect.



FIGURE 183. Systems Setting Change window

17. Click the Yes button to restart the computer.

14.4 Installing Device Driver for the PCI ARTIC Card

Note: The device driver for the IBM ARTIC Support **MUST** be installed prior to installing the device driver for the PCI ARTIC Card.

The PCI ARTIC Card is a Plug and Play device, so after the card is initially physically installed and the system comes up, the device will be recognized and the user will be prompted by the Found New Hardware Wizard to install the necessary Device Driver.

If the card was already installed in the PC when the conversion to Windows XP was performed, you will not receive the prompt for the driver. Instead, you will have to manually add the device driver. See the following steps for a manual installation:

1. Bring up the Start Menu
2. Go to Settings, and then click on the System icon.
3. When the System Properties window appears, click on the Hardware tab.
4. Click on the Device Manager button as displayed in Figure 184.

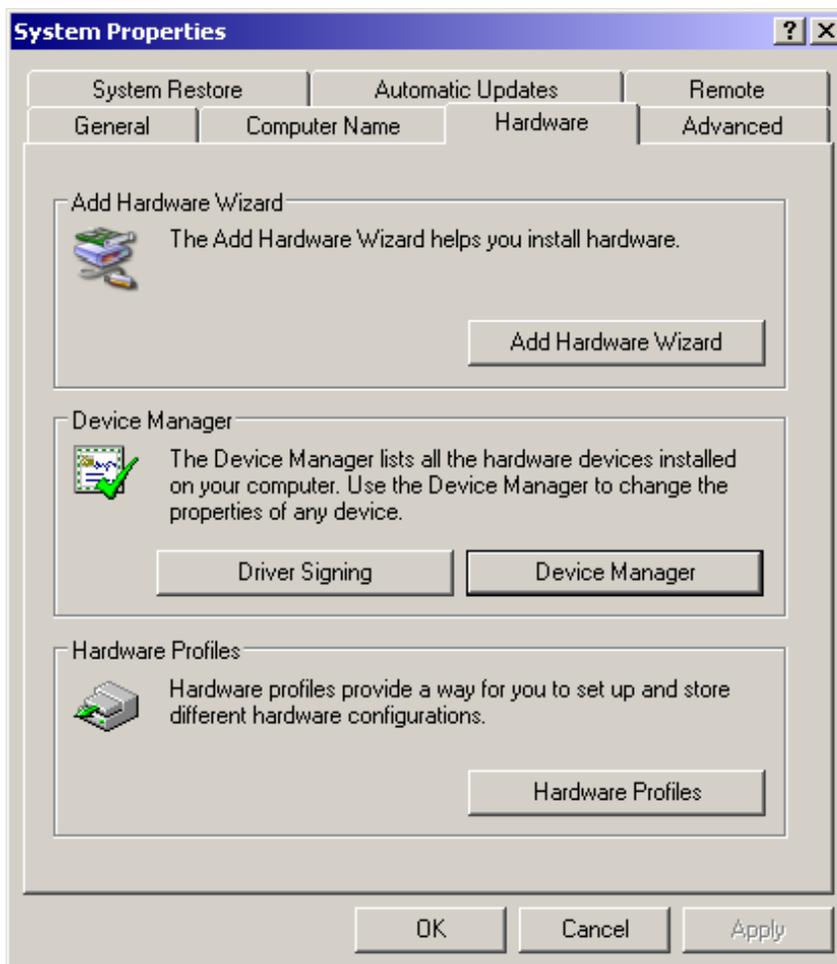


FIGURE 184. System Properties

5. The Device Manager windows opens.
6. If the Other devices group is not already expanded, click on the “+” to expand it.
7. Select the item named, “PCI Simple Communications Controller” with a single mouse click.
8. Click on the right mouse button to make the Properties window appear as shown in Figure 185.

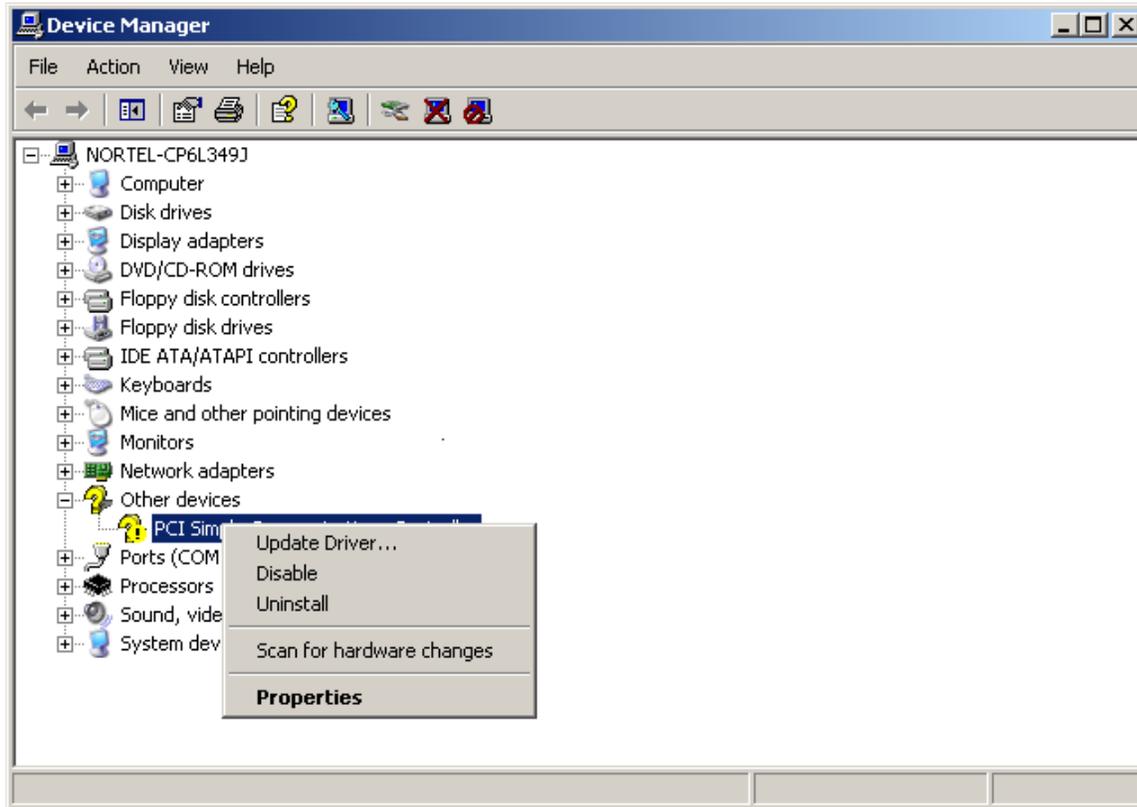


FIGURE 185. Properties of the PCI Simple Communications Controller

9. Select the Update Driver option from the list.

10. The Found New Hardware Wizard will appear.



FIGURE 186. Found New Hardware Wizard

11. Select “Install the software automatically (Recommended) option.

12. The wizard will display the screen shown in Figure 187 as it installs the proper driver files.

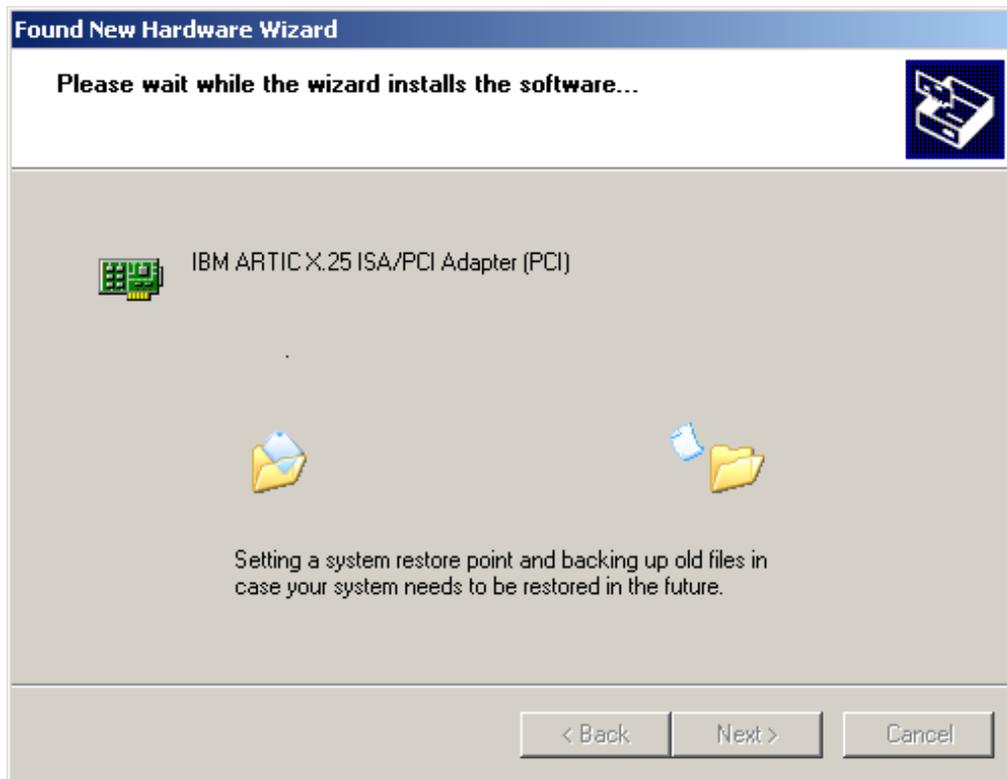


FIGURE 187. Hardware Wizard installation in process

13. When complete, the following screen appears.

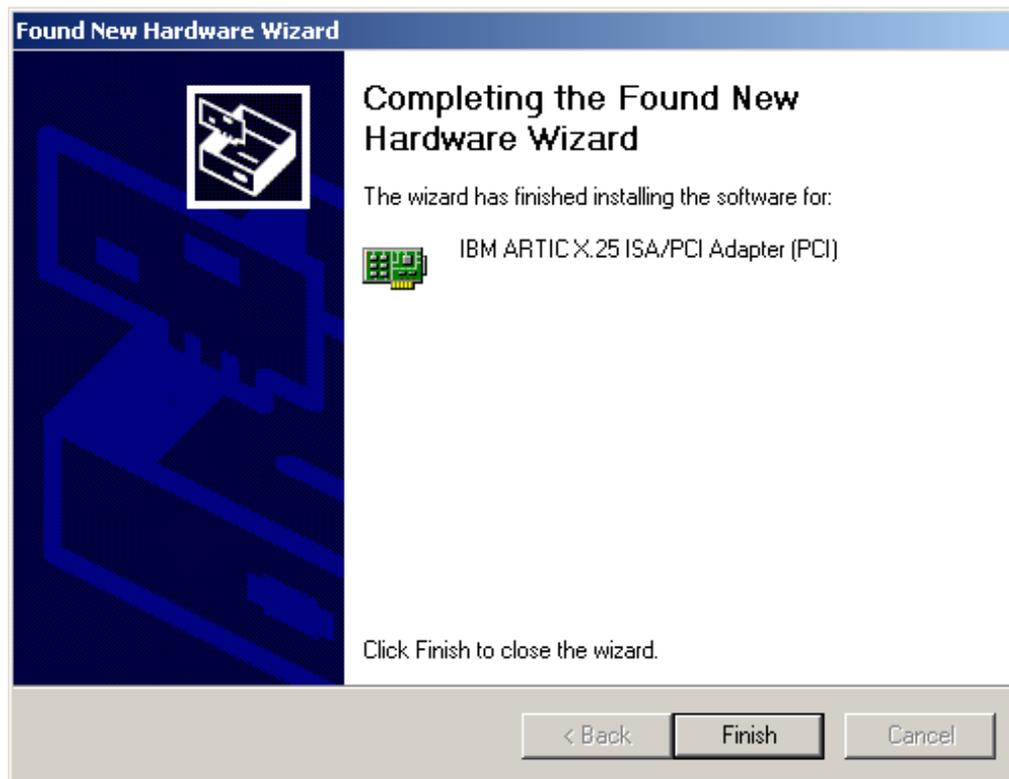


FIGURE 188. New Hardware Wizard completed screen

14. Click on the Finish button.

15. The Device Manager window then reappears, showing the properly installed IBM ARTIC X.25 ISA/PCI Adapter (PCI).

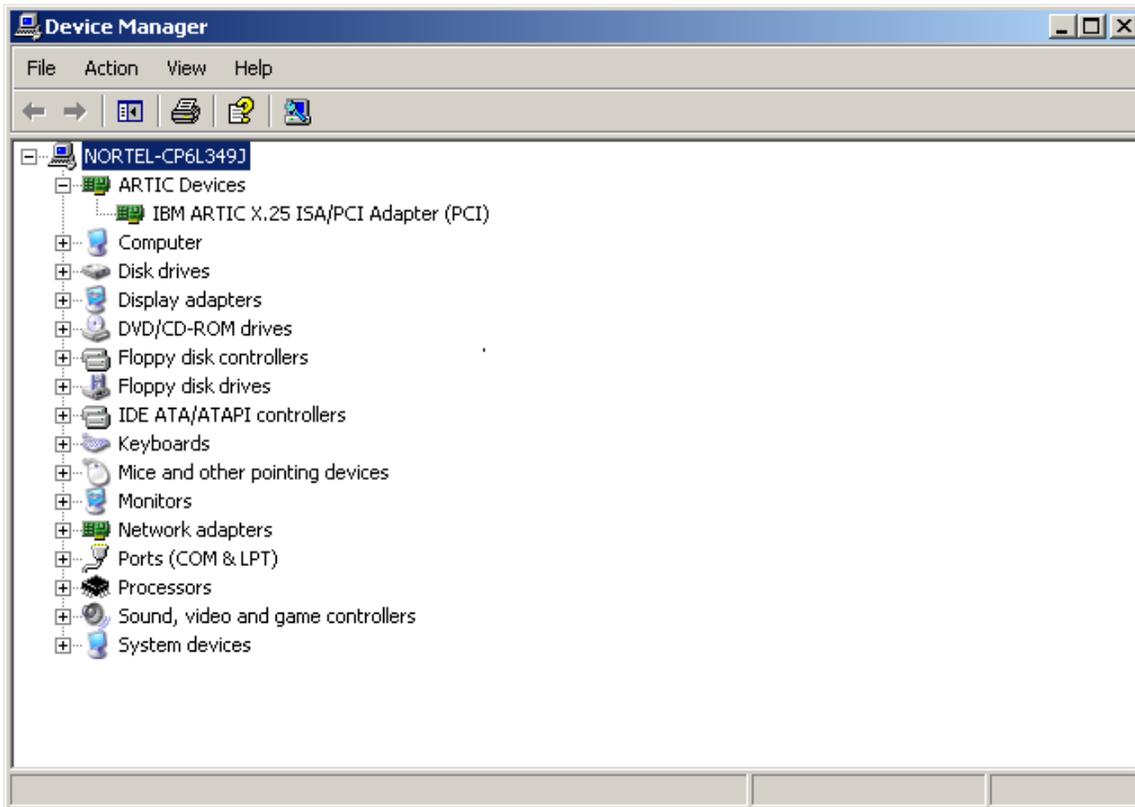


FIGURE 189. Device Manager window

14.5 Installing Device Driver for the ISA ARTIC Card

The Quadron ISA ARTIC Card is not a Plug and Play device, so when the card is physically installed, the system will NOT detect it automatically and prompt the user for the necessary drivers.

WARNING: Verify the “Adapter Settings” on page 38 before proceedings. Incorrectly set card settings will nullify this procedure.



The device driver for the IBM ARTIC Support MUST be installed prior to installing the device driver for the ISA ARTIC Card.

The user must reserve the following resources in the BIOS BEFORE entering this ISA procedure:

IRQ Range of 11

Memory Range of C800 - CBFF

VERIFY THESE ITEMS BEFORE PROCEEDING!

After the card has been installed, the installer must use the Add Hardware Wizard to add the device. Follow the steps below:

1. To access the Add Hardware Wizard, open the Control Panel and select the System Properties icon.
2. Select the Hardware Tab on the System Properties Page.

3. Select the Add Hardware Wizard button as shown in Figure 190.



FIGURE 190. System Properties

4. This will bring up the screen in Figure 191.



FIGURE 191. Add Hardware Wizard screen

5. Click the Next button to continue.

6. As in Figure 192, the Wizard will prompt you to determine whether or not the hardware has already been connected.

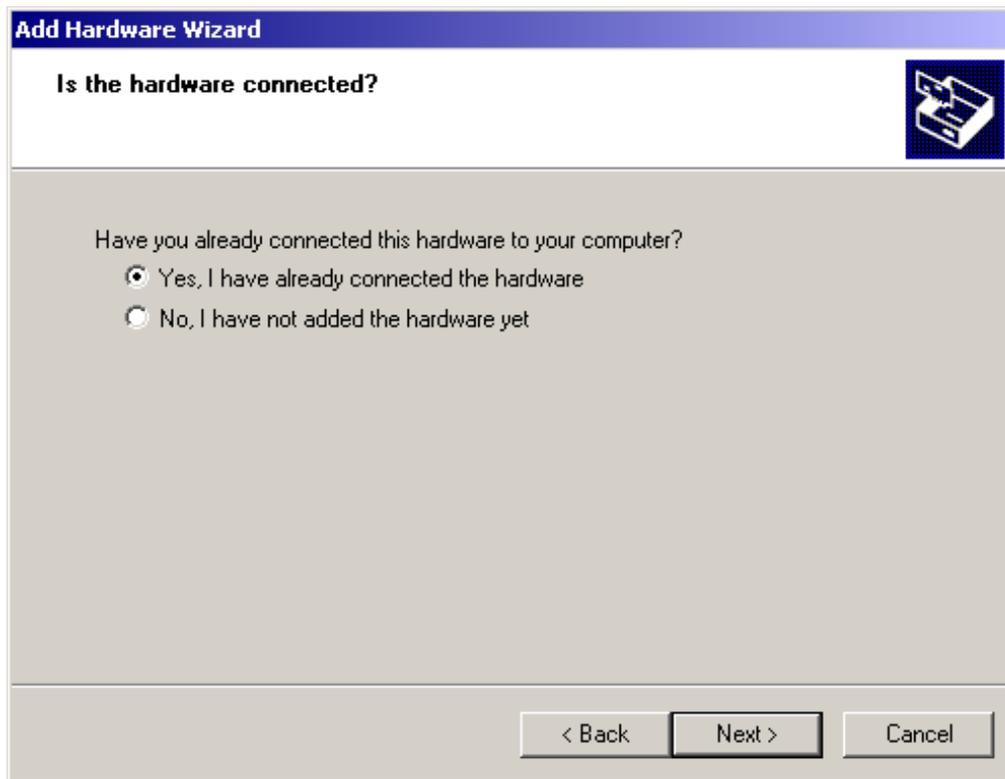


FIGURE 192. Is the hardware connected screen

7. Select Yes, and then click on the Next button.

8. This will bring up a window containing the installed hardware list.

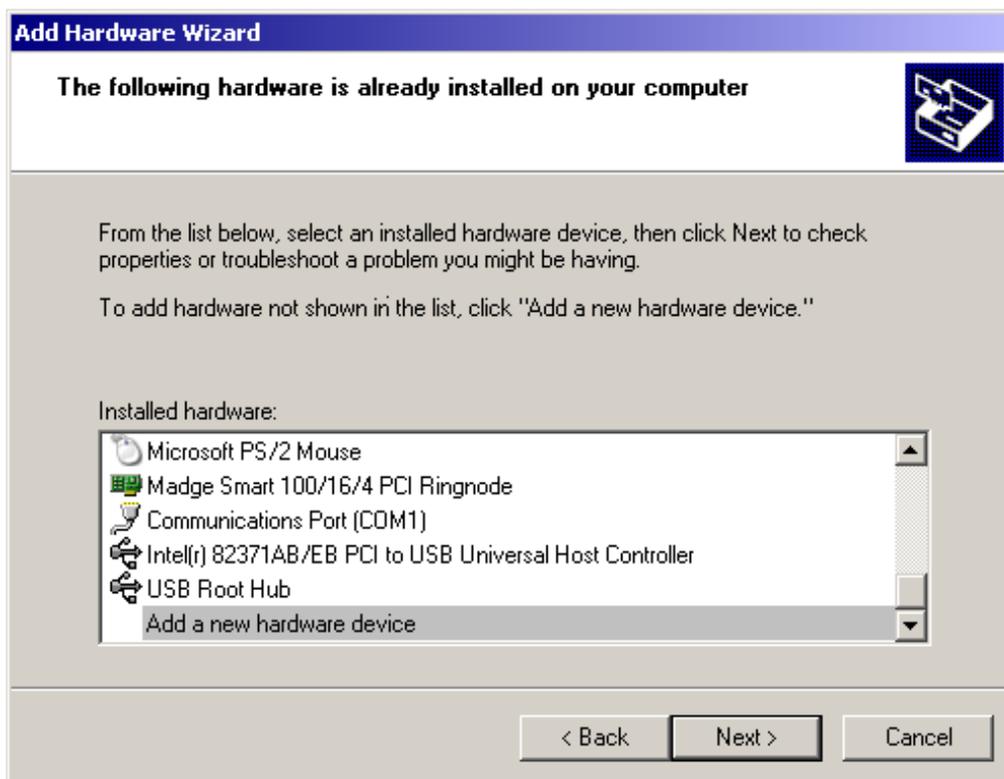


FIGURE 193. Hardware installed list

9. Scroll to the bottom of the installed hardware list and select "Add a new hardware device."
10. Click on the Next button.

11. The Add Hardware Wizard window appears providing you the option to install more hardware.

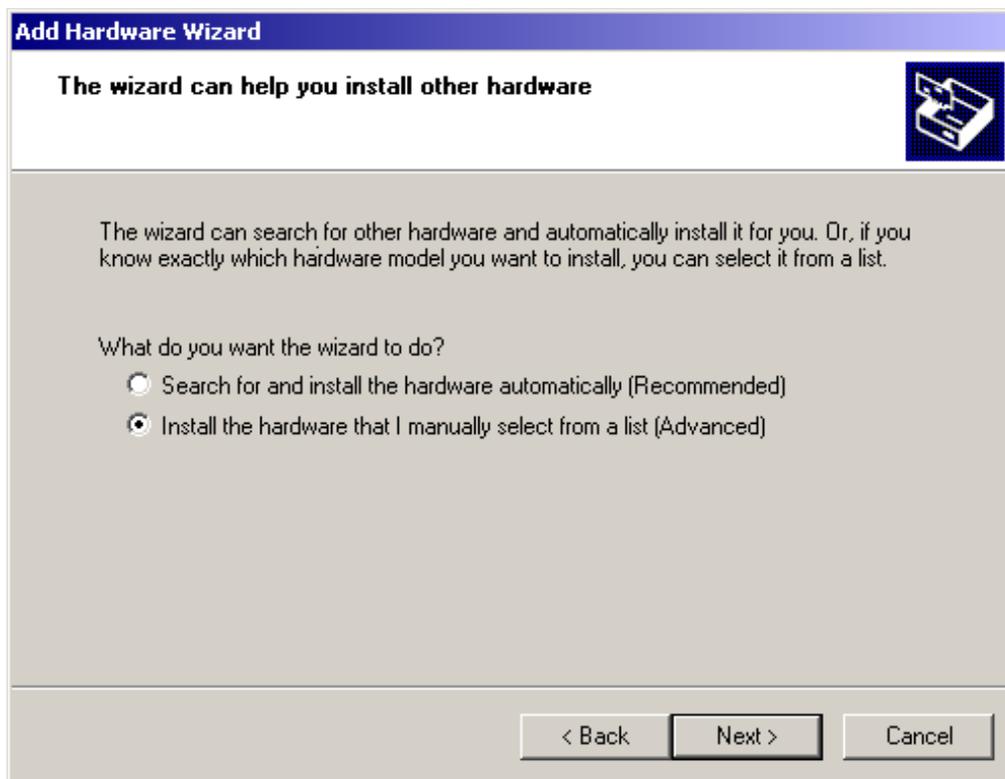


FIGURE 194. Installing other hardware screen

12. Select the option to indicate manual selection from a list.
13. Click on Next.

14. A list of common hardware types appears from which you can select.

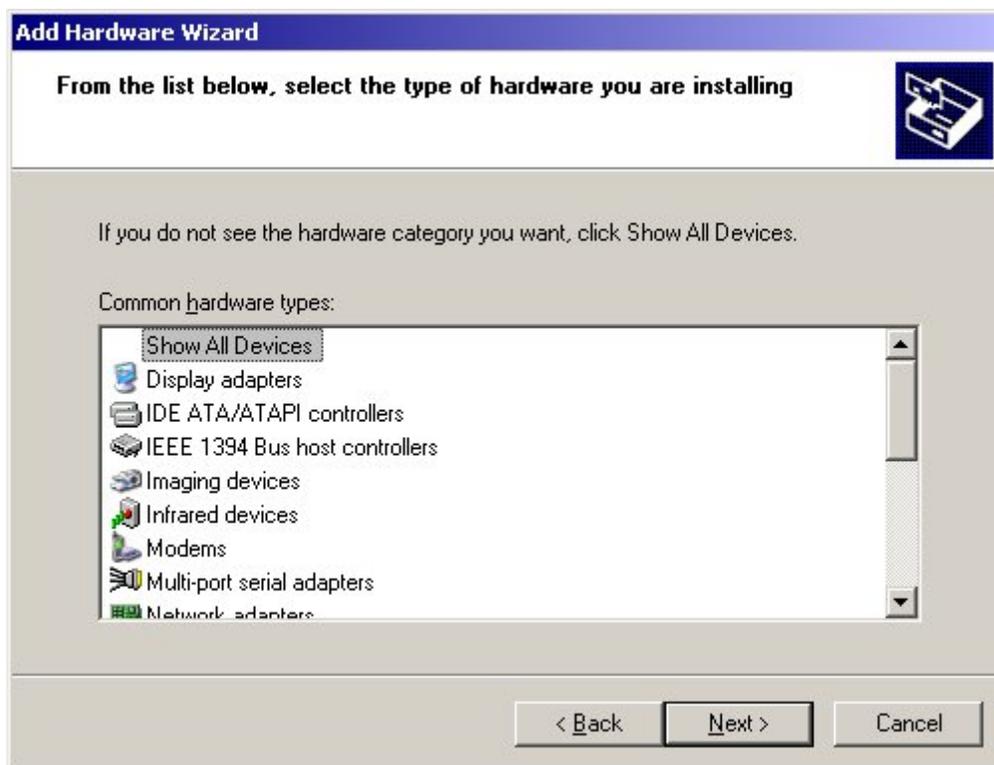


FIGURE 195. Hardware selection type window

15. Select “Show All Devices.”

16. Click Next.

17. A new window appears for you to select the device driver.

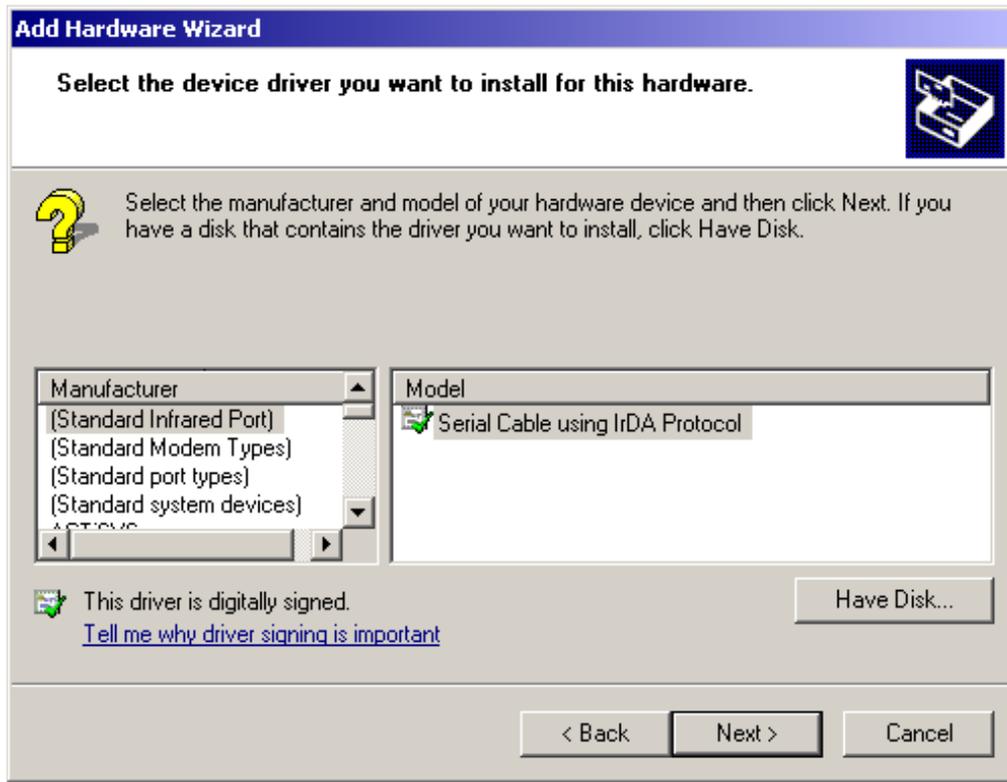


FIGURE 196. Select device driver screen

18. Select the Have Disk Button. This will bring up the Install From Disk dialog box.

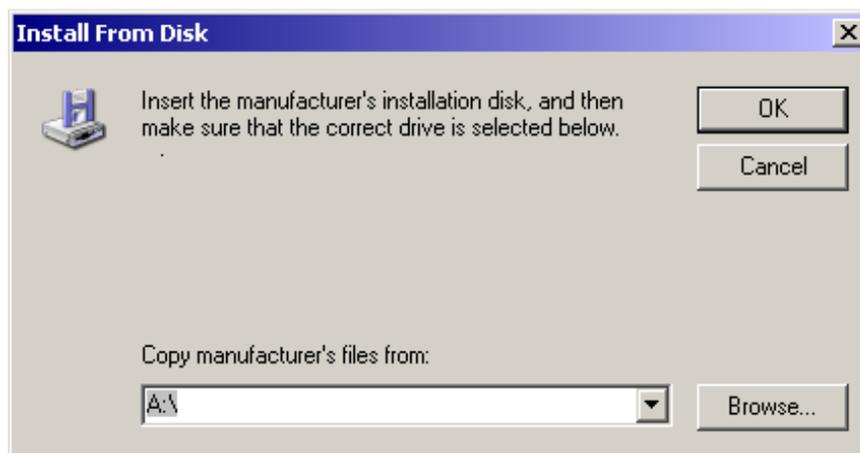


FIGURE 197. Install from Disk

19. Click on the Browse button.
20. The Locate File window opens.
21. Browse to the c:\temp directory.
22. Select the ARTIC2K.INF file as seen in Figure 198.

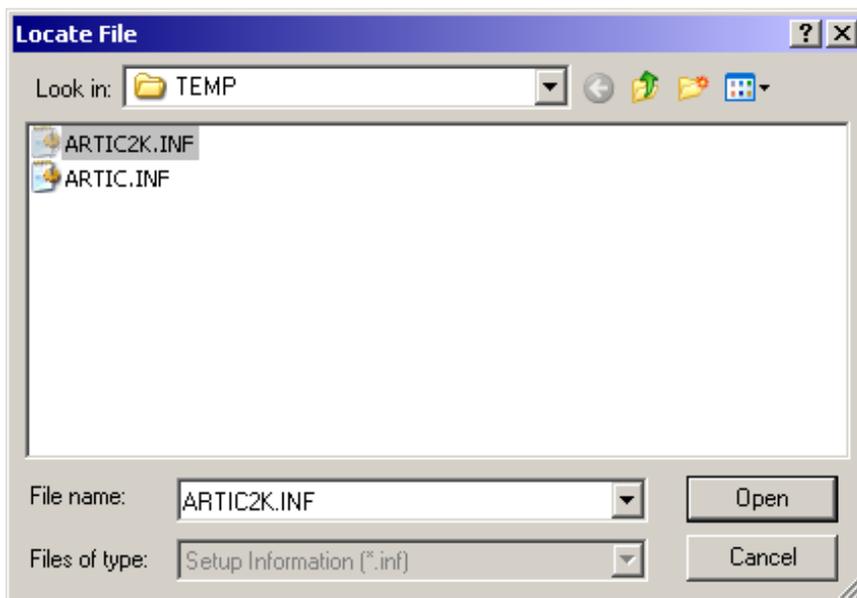


FIGURE 198. Locate File window

23. Click on the Open button. The Install From Disk window reappears with the correct file location.
24. Click the OK button.

25. A new window will open for selecting device drivers as seen in Figure 199.

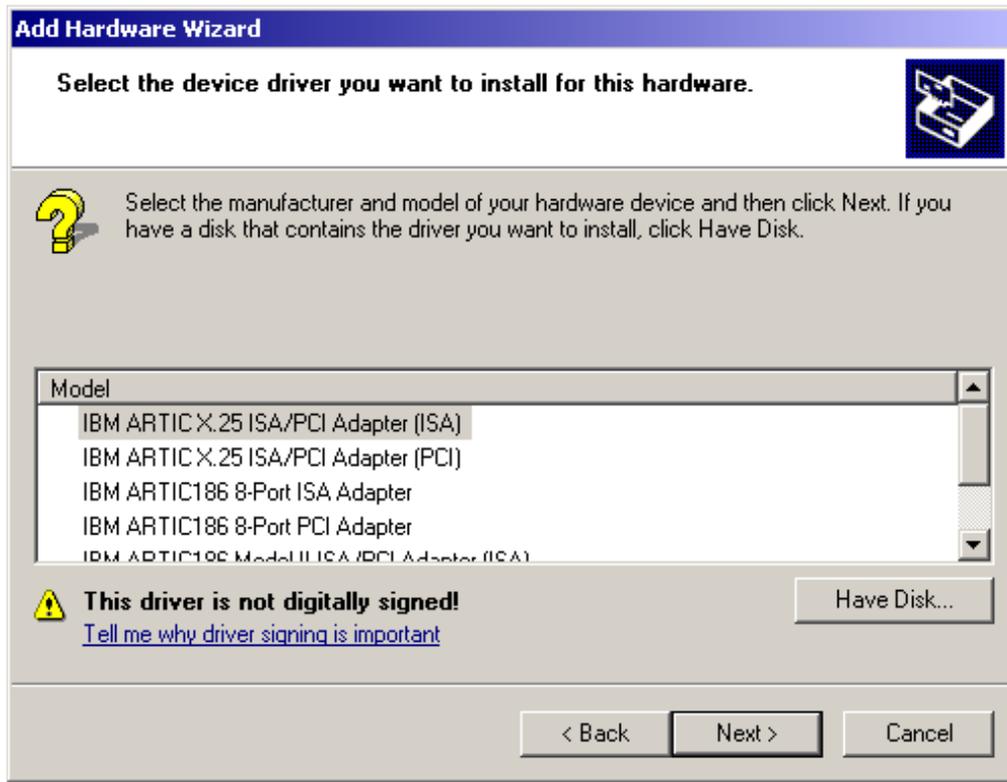


FIGURE 199. Device driver installation window

26. When the list of available drivers appear, select “IBM ARTIC X.25 ISA/PCI Adapter (ISA)” then click on Next to continue.

27. The Add Hardware Wizard is now ready. Verify your selection.

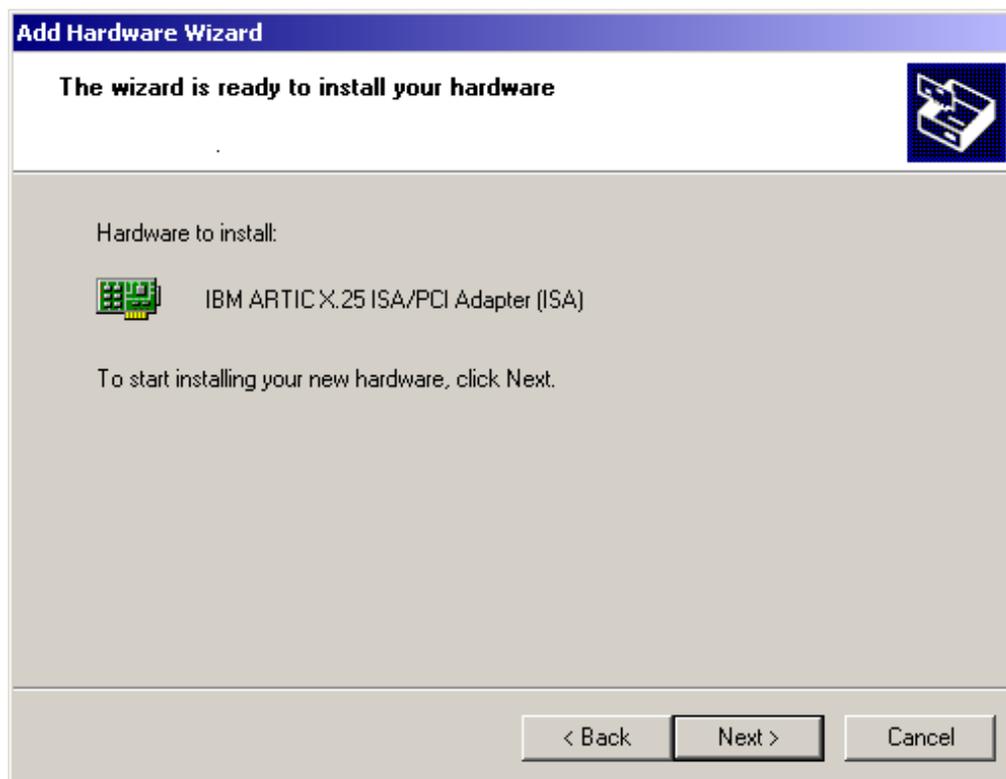


FIGURE 200. Installation ready window

28. Figure 200 confirms your selection.

29. Click on Next to continue.

30. Figure 201 appears when the installation is complete.



FIGURE 201. Hardware installation complete window

31. Click on “View or change resources for this hardware (Advanced)”.

32. This will open the Resources window as seen in Figure 202.

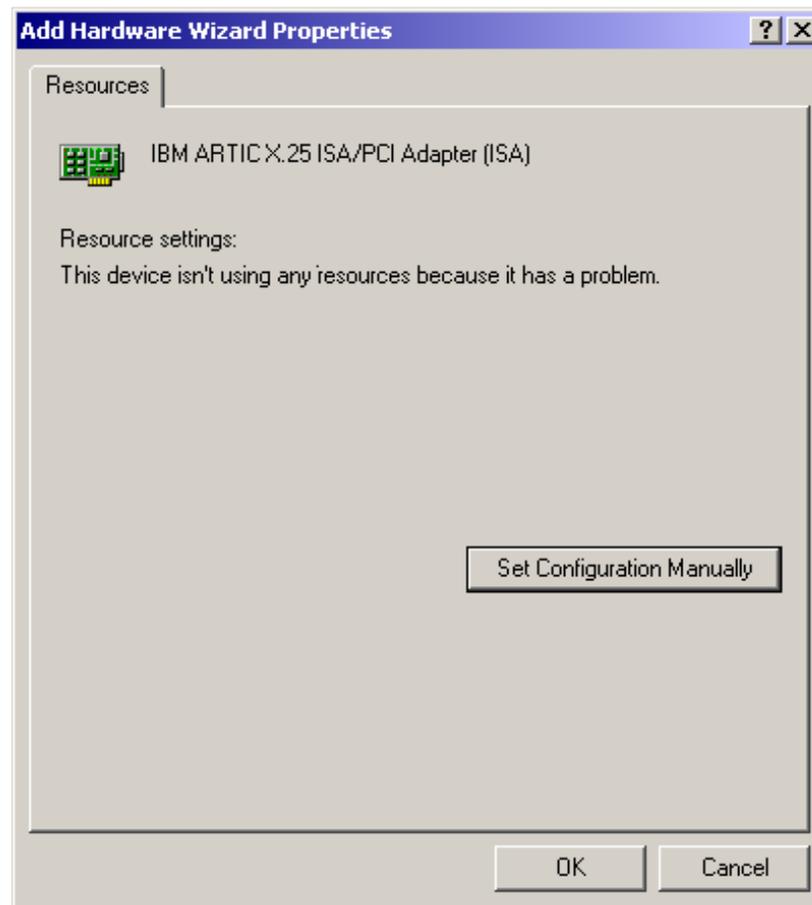


FIGURE 202. Add Hardware Wizard Properties - Resources window

33. When the Add Hardware Wizard Properties window appears, click on the Set Configuration Manually button.

34. This will open the Resources window.

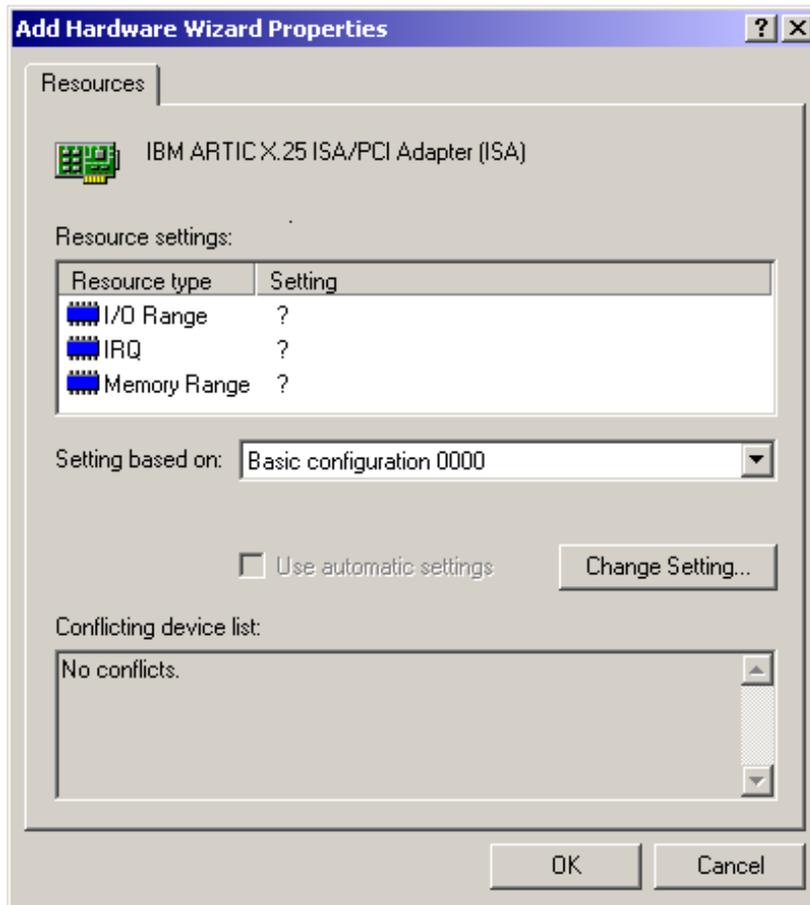


FIGURE 203. Resources setting window

35. When the Resource pane appears, the default values are shown.
36. Select I/O Range.
37. Click on the Change Setting button.

38. The window in Figure 204 appears with the current values in the Value field.

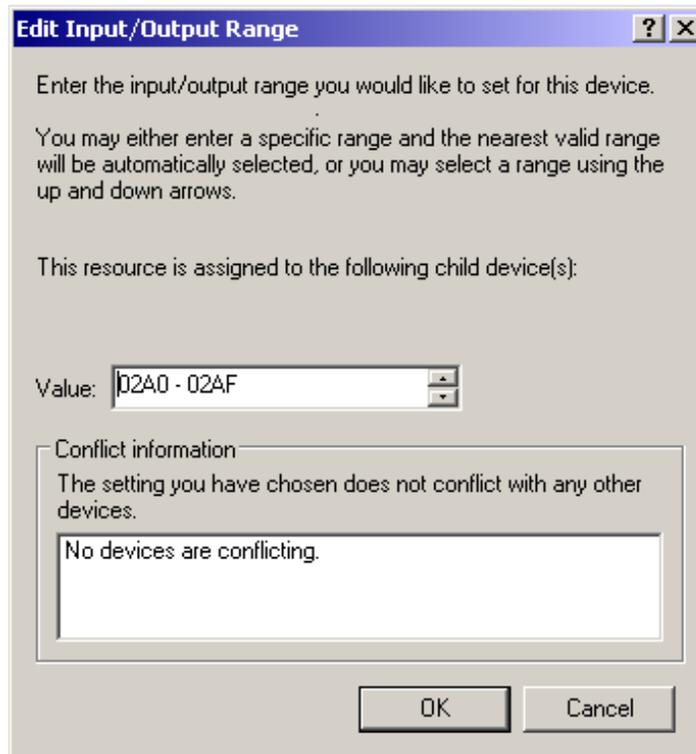


FIGURE 204. Edit Input/Output Range window

39. Within the list, change the value to 02A0-02AF.
40. Click on the OK button.
41. Upon returning to the Resource pane window, select IRQ and then click on the Change Setting button.

42. This will bring up the Edit Interrupt Request window as shown in Figure 205.

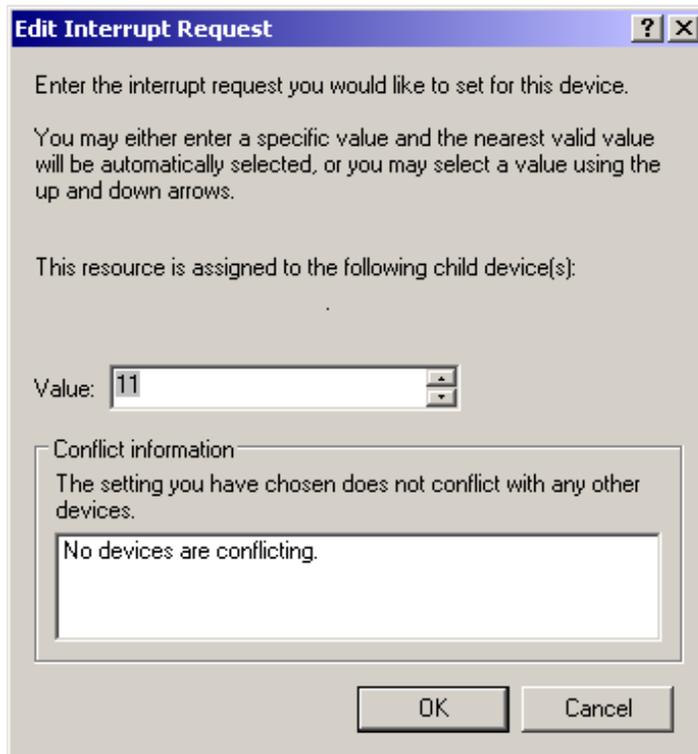


FIGURE 205. Edit Interrupt Request window

43. Within the Value list, change the value to 11.
44. Click on the OK button.
45. This will return you to the Resource pane window.
46. Select Memory Range and then click on the Change Setting button.

47. This will bring up the Edit Memory Range window as shown in Figure 206.

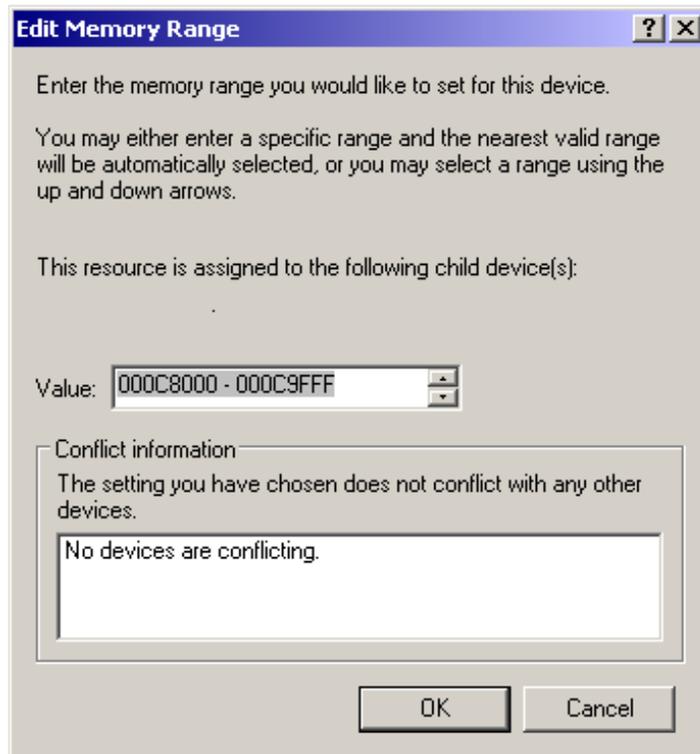


FIGURE 206. Edit Memory Range window

48. Within the Value list, change the value to 000C8000-000C9FFF.
49. Click on the OK button.
50. This will return you to the Resources window.

51. Verify that your settings match Figure 207.

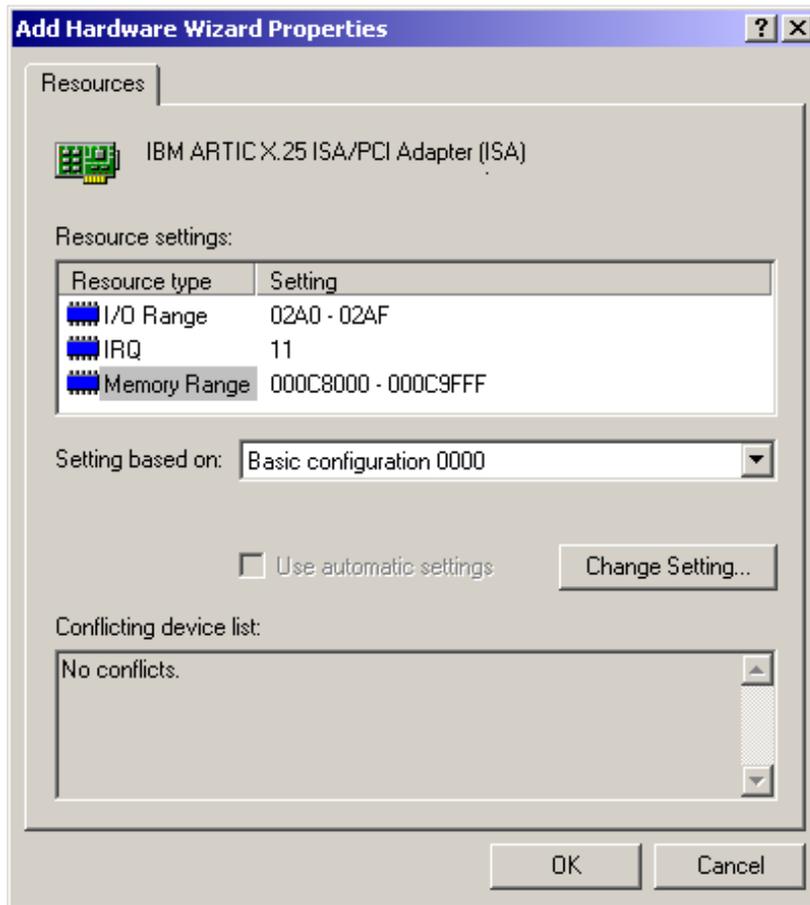


FIGURE 207. Completed edit of Resource window

52. Once verification is complete, and the Resource window displays all of the settings properly, click on the OK button.

53. This will bring up the Completing the Add Hardware Wizard window.



FIGURE 208. Completing the Add Hardware Wizard window

54. Click the Finish button.

55. The Systems Setting Change window appears.

Note: It is necessary to reboot the computer for all of the new settings to take effect.

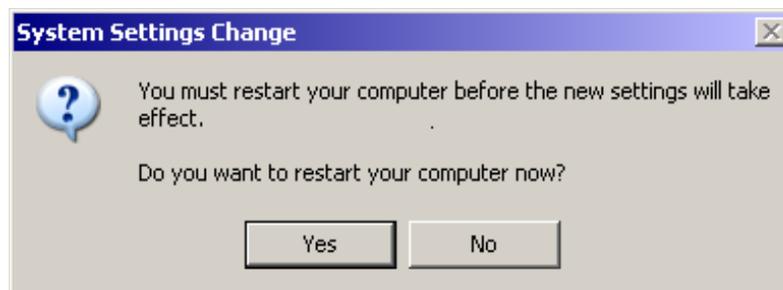


FIGURE 209. Systems Setting Change window

56. Click the Yes button to start the computer reboot.

57. After the system has successfully rebooted, open the Device Manager window again.

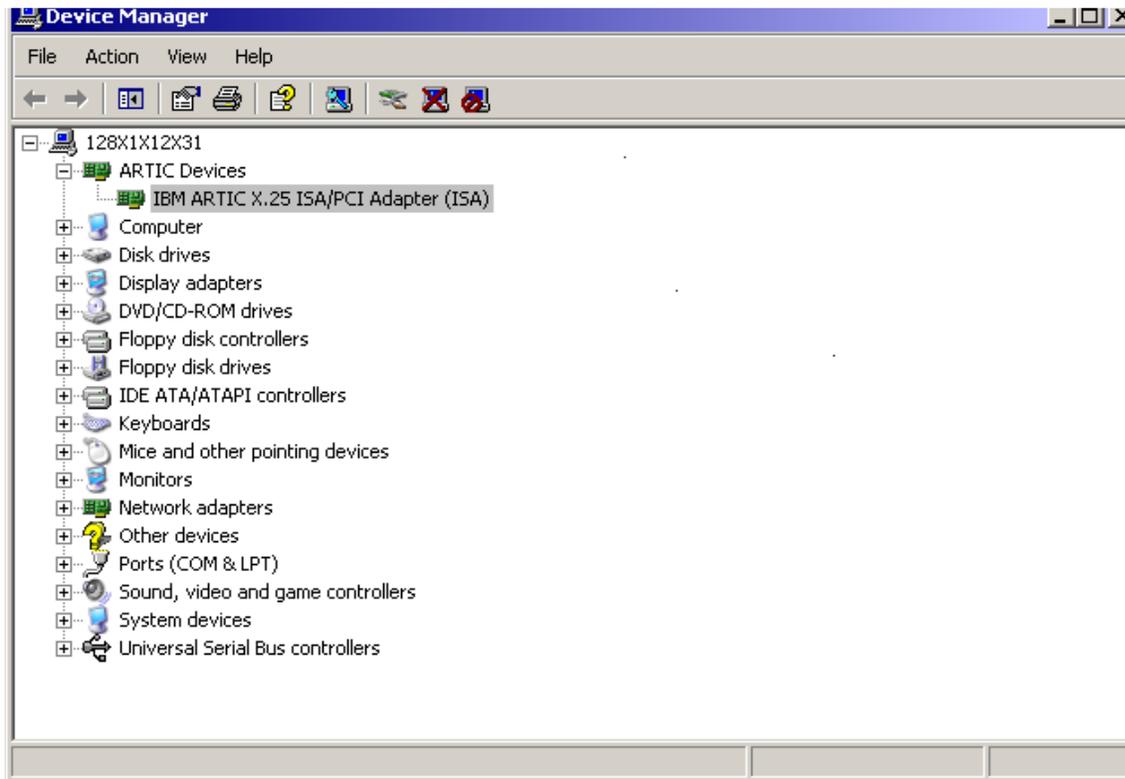


FIGURE 210. Updated Device Manager window

58. Verify that the ISA ARTIC Card is updated in the device manager to indicate a successful installation.

15.0 Appendix C: Audio Card Driver installation

The following sections are located as below:

Driver Name	Instructions	Page
IWS PCI Audio Card	Initial installation	page 445
	Postponed installation	page 451
	Verifying the device driver installation	page 459
	Upgrading device drivers	page 463
IWS ISA Audio Card	Initial installation	page 469
	Verifying the device driver installation	page 481
	Updating device drivers	page 483

15.1 Installing Device Drivers for the IWS PCI Audio Card

The IWS PCI Audio Card is a Plug and Play device, so after the card is physically installed and the system comes up, the device will be recognized and the user will be prompted by the Found New Hardware Wizard to install the necessary Device Drivers. If at this time the IWS PCI Audio Card Device Drivers are not available, the installer may Cancel the Wizard and install the Drivers at a later time. Please refer to “Postponed Installation: Using the Hardware Update Wizard” on page 451 for those instructions.

15.1.1 Installing Drivers through the Found New Hardware Wizard

The Found New Hardware Wizard will guide you through the installation process. Follow the prompts.

1. The Welcome to the Found New Hardware Wizard window appears.



FIGURE 211. Welcome to the Found New Hardware Wizard window

2. Select the option to “Install from a list or specific location (Advanced).”
3. Click Next.

4. A window will appear requesting that you choose your search and installation options.

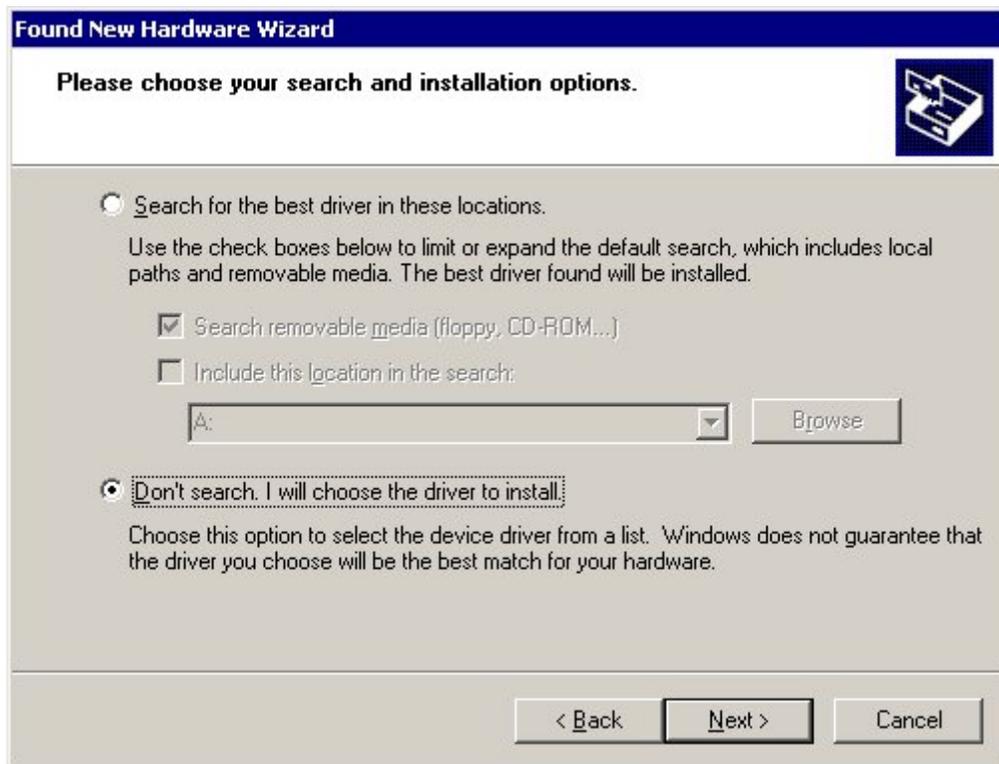


FIGURE 212. Search and Installation options window

5. Select the “Don’t search...” option.
6. Click Next.

7. A new window will appear with the device driver options available.



FIGURE 213. Select device driver window

8. Click on the “Have Disk...” button.
9. The Install From Disk window appears.

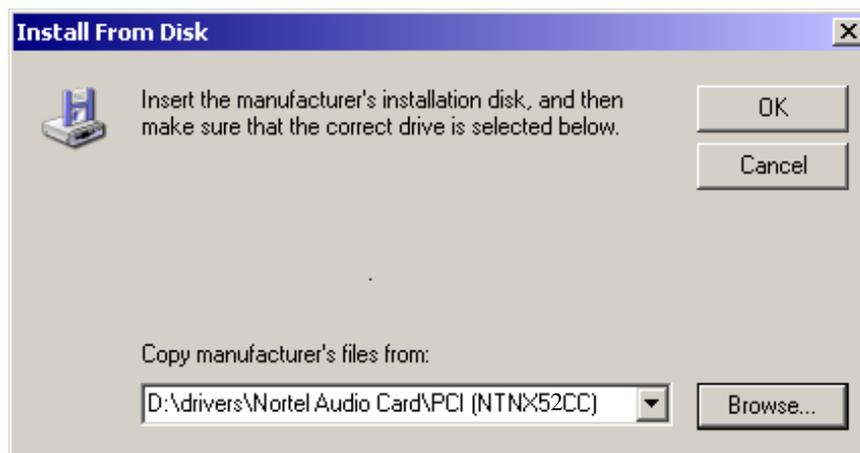


FIGURE 214. Install From Disk window

10. Click the Browse button and point the location on the installation CD where the iwsacpci.inf file resides.
11. Click OK.
12. The select device driver window reappears with the IWS PCI Audio card selected.



FIGURE 215. Selected device driver window

13. Select the IWS PCI Audio Card and click Next.

14. The Hardware Installation Wizard displays a warning box indicating that the software has not been certified with Microsoft.
15. Select the Continue Anyway button to install the driver.
16. Once the installation is complete, the window in Figure 216 will appear.



FIGURE 216. Completing the Found New Hardware Wizard window

17. Click the Finish button.

15.1.2 Postponed Installation: Using the Hardware Update Wizard

The user can cancel the Installation Wizard's initial attempt to install the Drivers with the intent of installing the device later, perhaps when the media is available. To install the Device Drivers after this point, follow the steps below:

1. Open the Control Panel and select System.
2. Open the Systems Properties window.

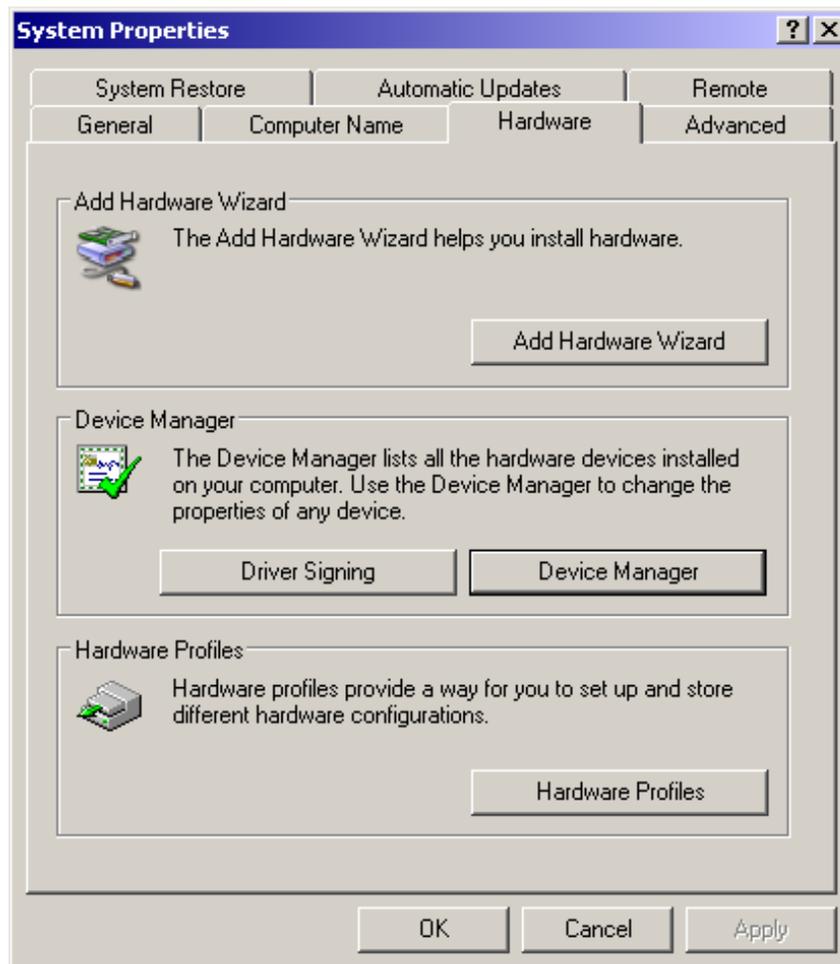


FIGURE 217. System Properties

3. Select the Hardware Tab on the System Properties window.
4. Click on the Device Manager button.

5. The Device Manager window opens as in Figure 218.

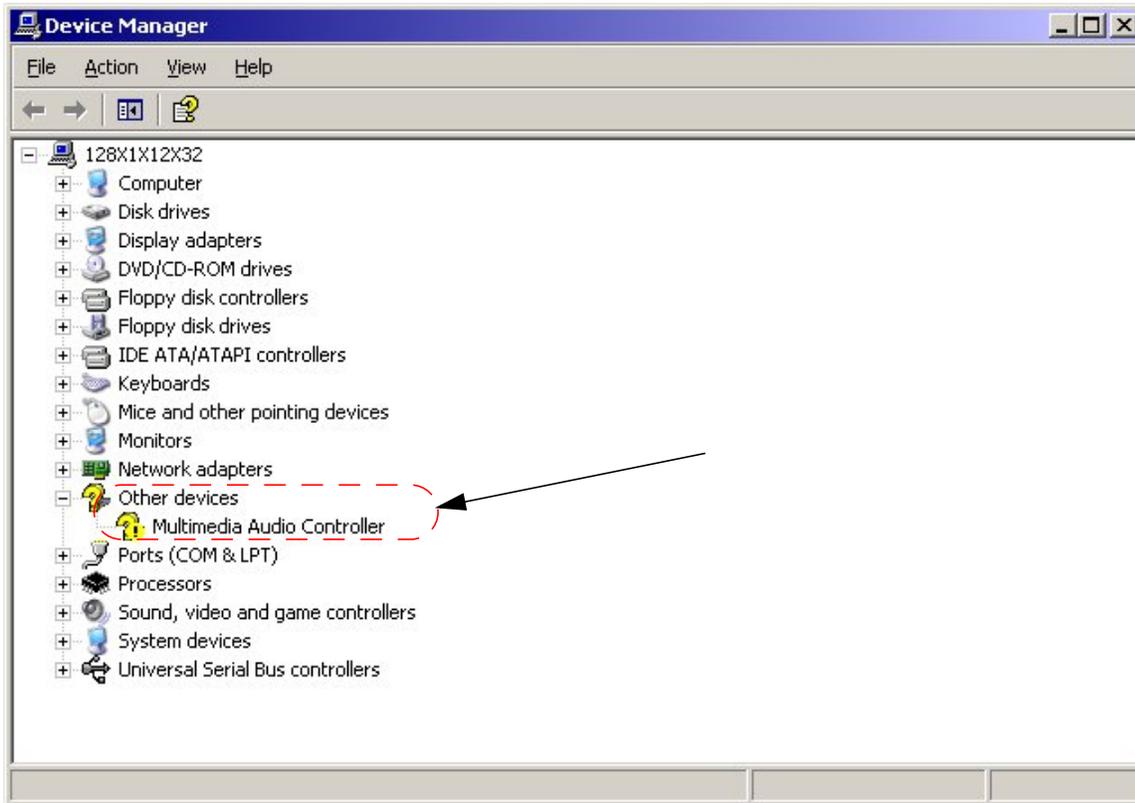


FIGURE 218. Device Manager window

6. Select Other Devices, and then Multimedia Audio Controller.
7. Select the IWS PCI Audio Card located under the Multimedia Audio Controller.
8. Right click with the mouse and select Install Driver.

9. The Welcome to the Hardware Update Wizard window appears.



FIGURE 219. Hardware Update Wizard window

10. Select the option to “Install from a list or specific location (Advanced).”

11. Click Next.

12. The Hardware Update Wizard displays a new window to choose the search and installation options.

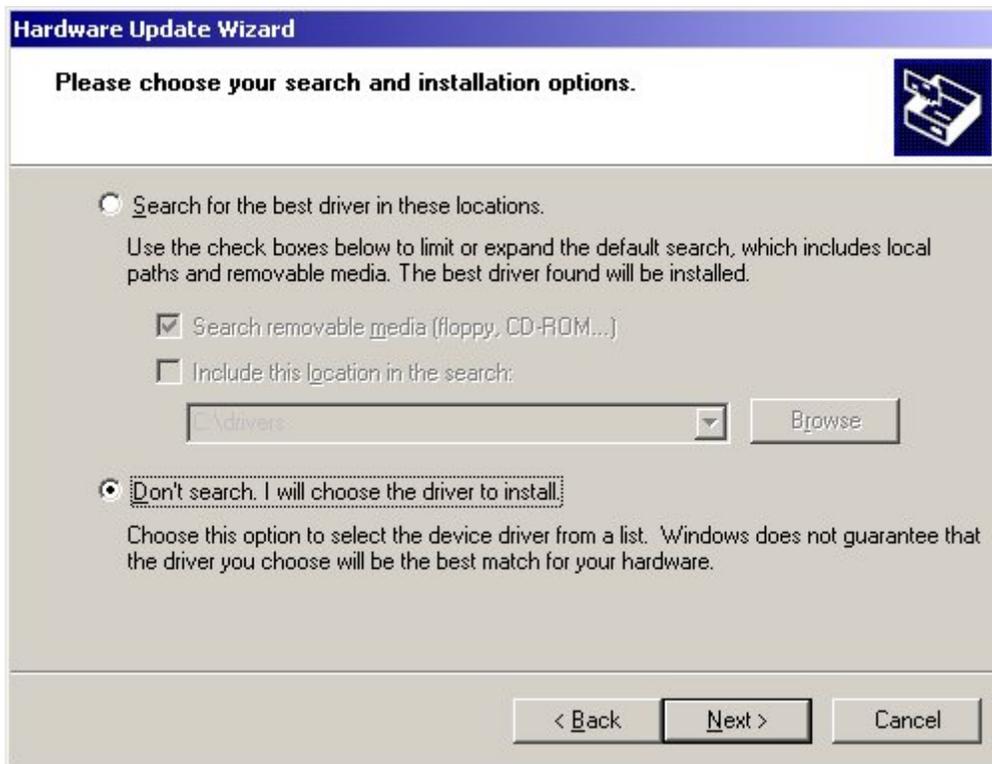


FIGURE 220. Hardware Update Wizard: search and installation options

13. Select the “Don’t search” option.
14. Click Next.

15. The Hardware Type window appears.

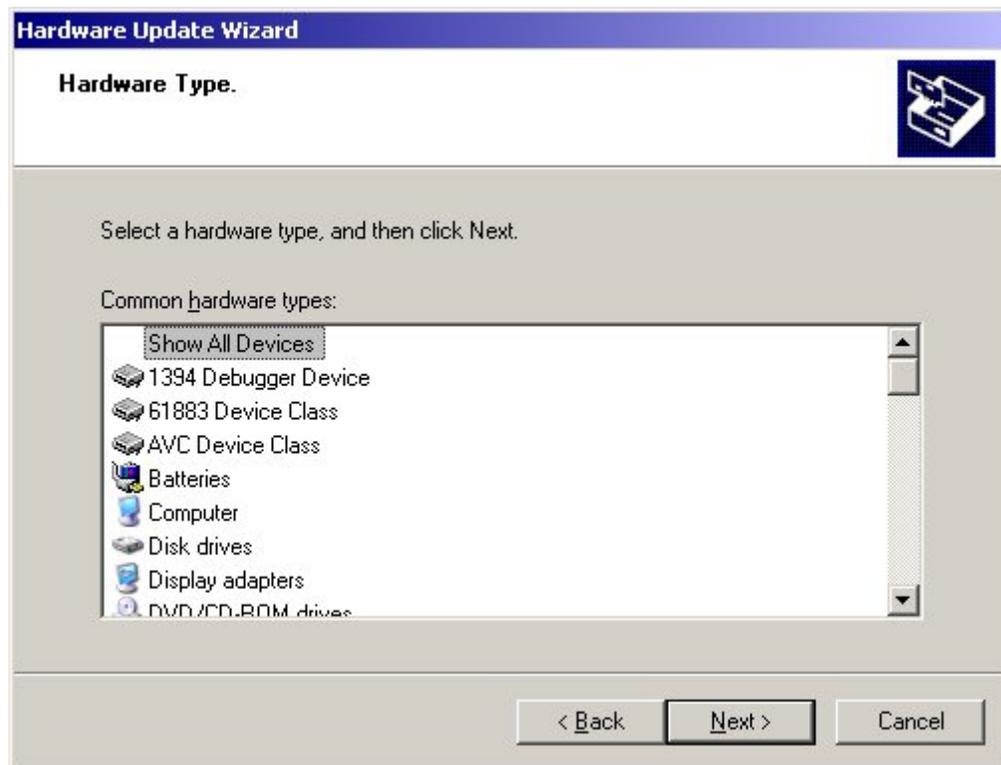


FIGURE 221. Hardware Type window

16. Select Show All Devices.

17. Click Next.

18. The Hardware Update Wizard displays a new window requesting you to select a device driver.

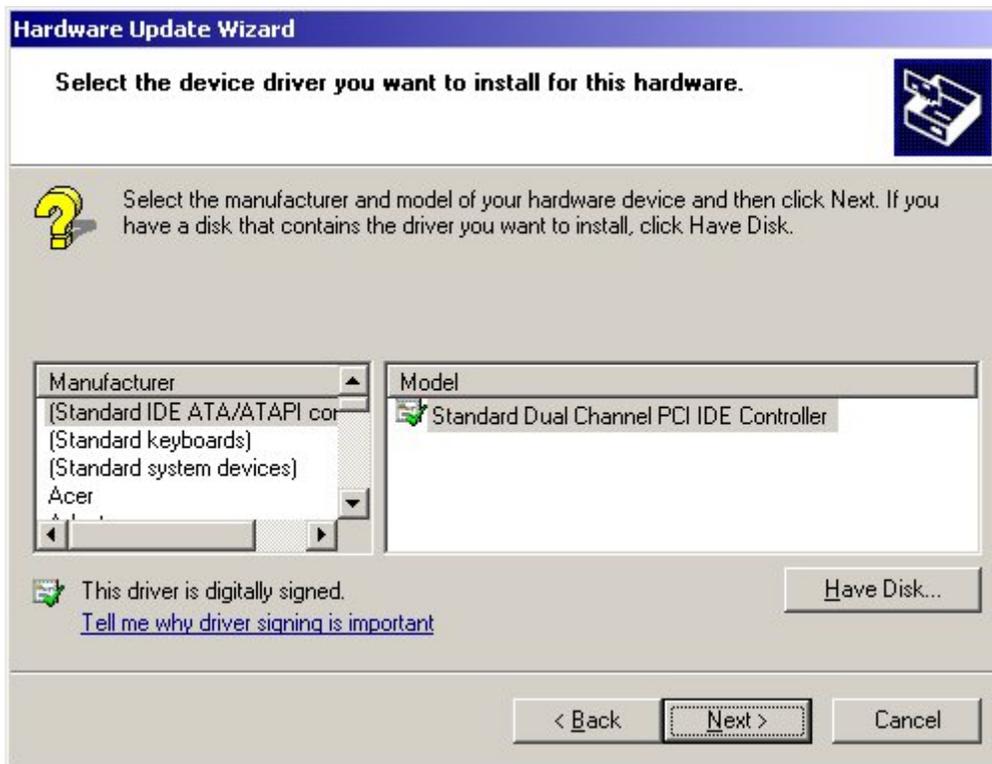


FIGURE 222. Select the driver device window

19. Click on the “Have Disk” button. This opens the Install From Disk window.

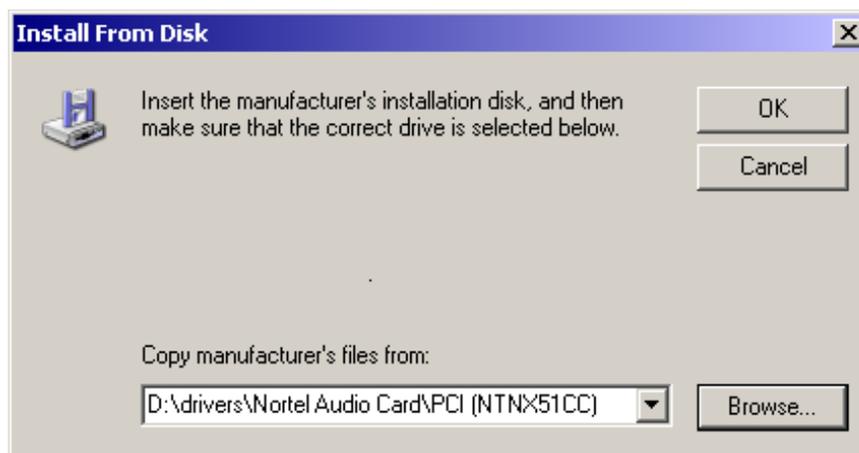


FIGURE 223. Install From Disk window

20. Select the Browse button and point to the location of the iwsacpci.inf file on the installation CD.
21. Click OK.
22. A new window appears requesting the device driver selection.

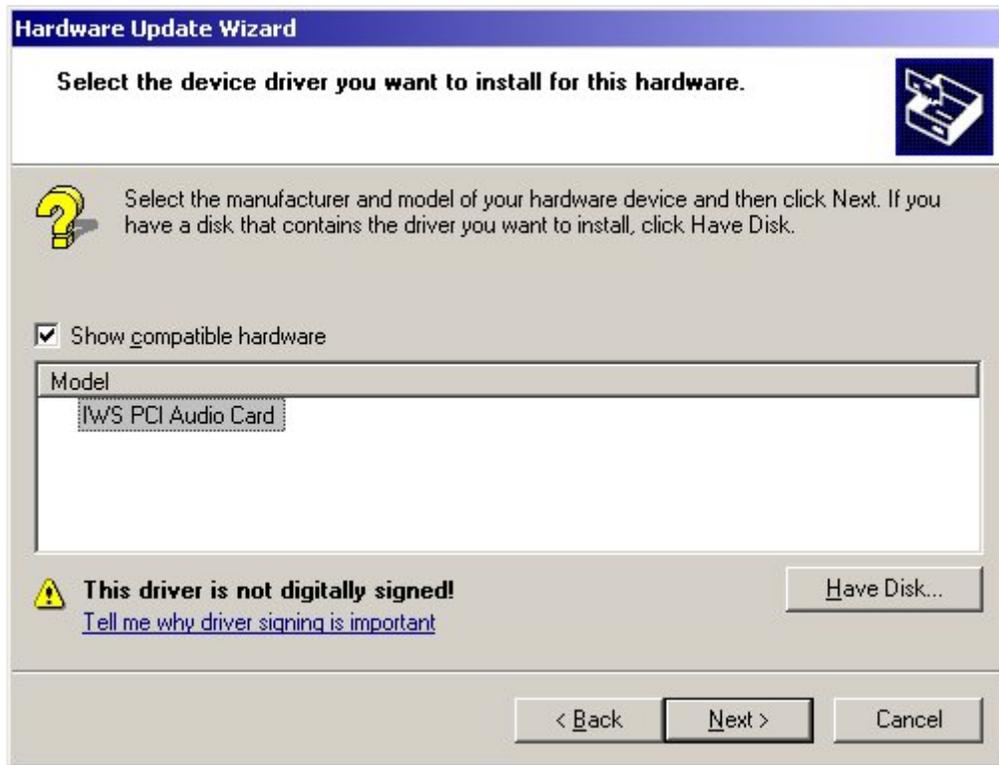


FIGURE 224. Select the device driver window

23. Select the IWS PCI Audio Card.
24. Click Next.

25. The Hardware Installation Wizard displays a warning box indicating that the software has not been certified with Microsoft.
26. Select the Continue Anyway button to install the driver.
27. Once the installation is complete, the window in Figure 225 will appear.



FIGURE 225. Completing the Hardware Update Wizard window

28. Click Finish.

15.1.3 Verifying IWS PCI Audio Card Device Driver Installation

Once the installation process is completed, you should verify that the IWS PCI Audio Card Device Driver is properly installed. Follow these steps:

1. Open the Control Panel.
2. Select System.
3. Select Device Manager.

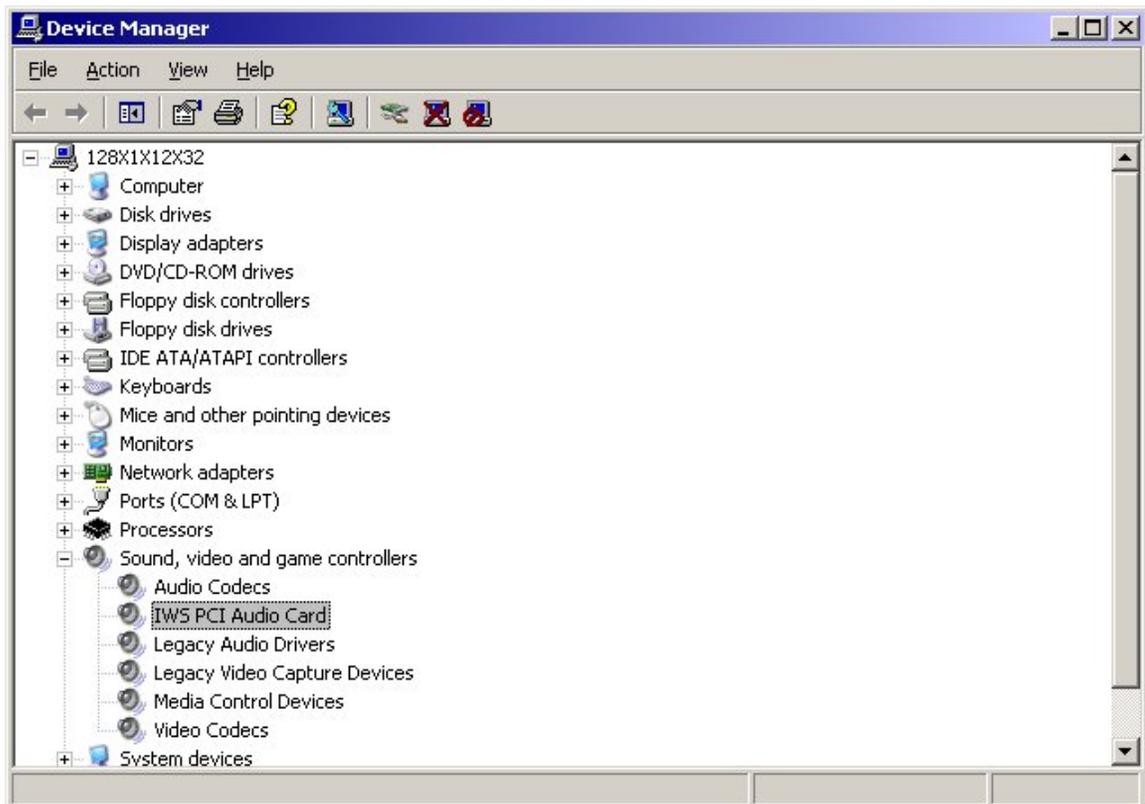


FIGURE 226. Device Manager

4. From within the Device Manager window, click on the “+” to open the select Sound, video and game controllers.
5. Verify that the IWS PCI Audio Card is displayed.
6. Select IWS PCI Audio Card.
7. Right mouse click on it, and select Properties.

8. The IWS PCI Audio Card Properties window should open.



FIGURE 227. IWS PCI Audio Card Properties window

9. Select the Driver Tab.

10. The window as in Figure 228 should appear.

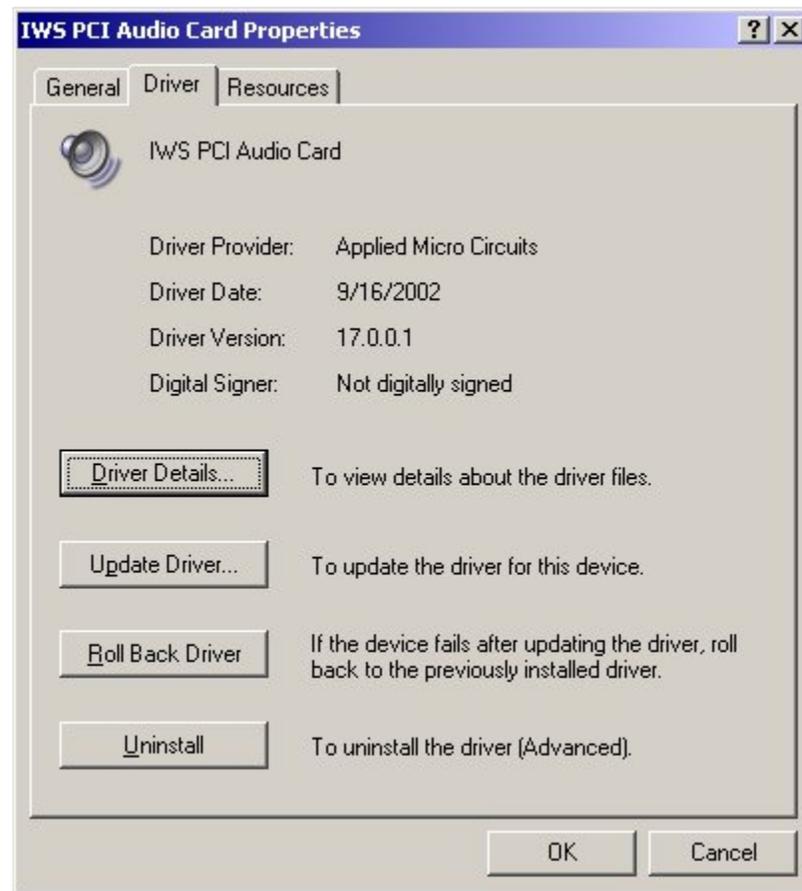


FIGURE 228. Driver tab of the IWS PCI Audio Card Properties

11. Click on the Driver Details button.

12. The window as in Figure 229 should appear.

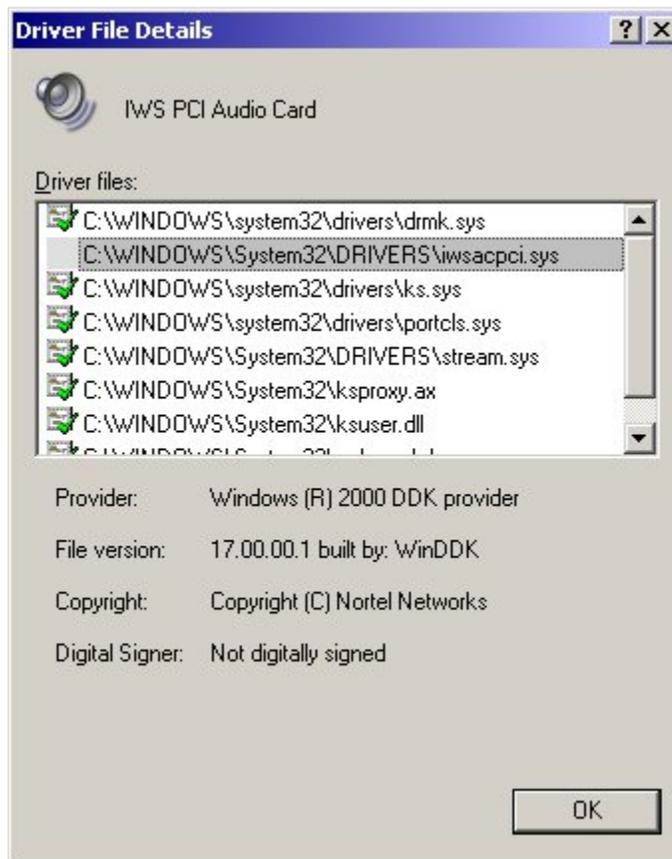


FIGURE 229. Driver File Details

13. The iwsacpci.sys file should be displayed in the list of driver files.
14. Once the IWS PCI Audio Card device driver is verified, click OK.

15.1.4 Upgrading Device Drivers for the IWS PCI Audio Card

In the event that a new version of the IWS PCI Audio Card Device Driver is released, the system must be updated with the new version.

1. Go to the Control Panel.
2. Select System.
3. Select Device Manager.

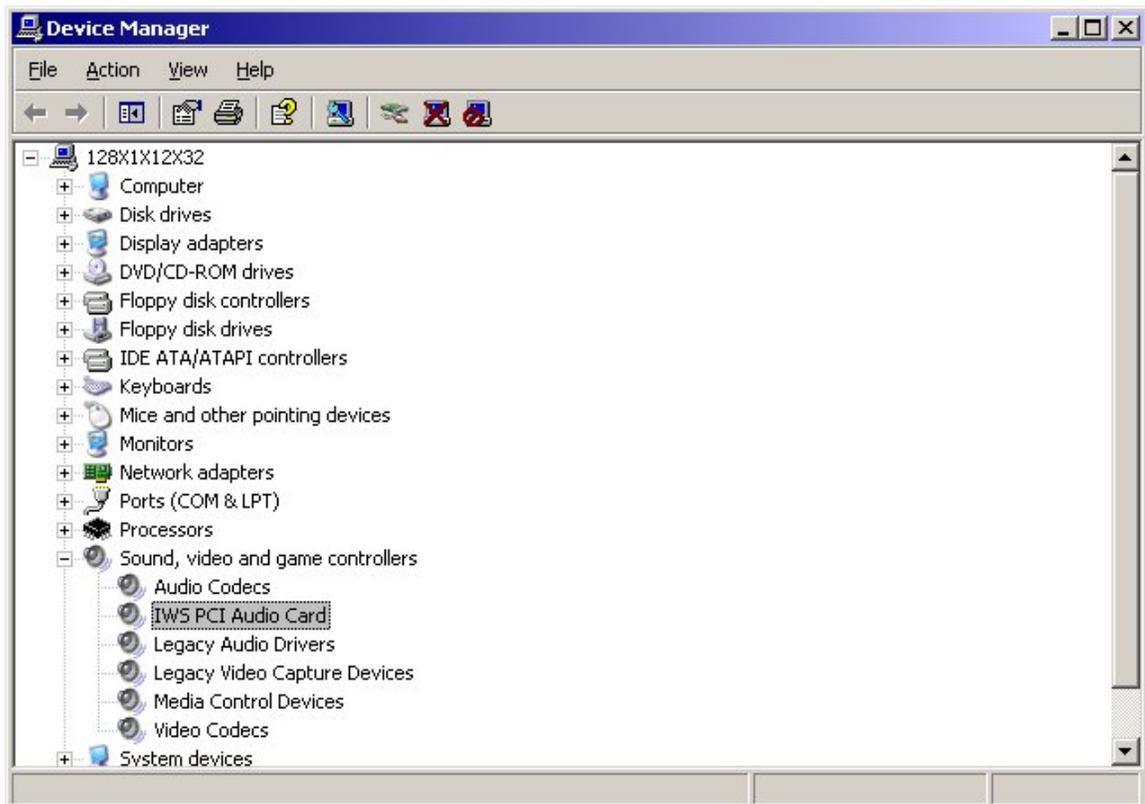


FIGURE 230. Device Manager

4. From within the Device Manager window, click on the “+” to open the select Sound, video and game controllers.
5. Verify that the IWS PCI Audio Card is displayed.
6. Select IWS PCI Audio Card.
7. Right mouse click on it, and select Properties.

8. The IWS PCI Audio Card Properties window should open.
9. Select the Driver Tab.
10. Click on Update Driver.
11. This will open the Hardware Update Wizard.



FIGURE 231. Welcome to the Hardware Update Wizard

12. Select the option to “Install from a list or specific location (Advanced).”
13. Click Next.

14. The Hardware Update Wizard displays a new window to choose the search and installation options.

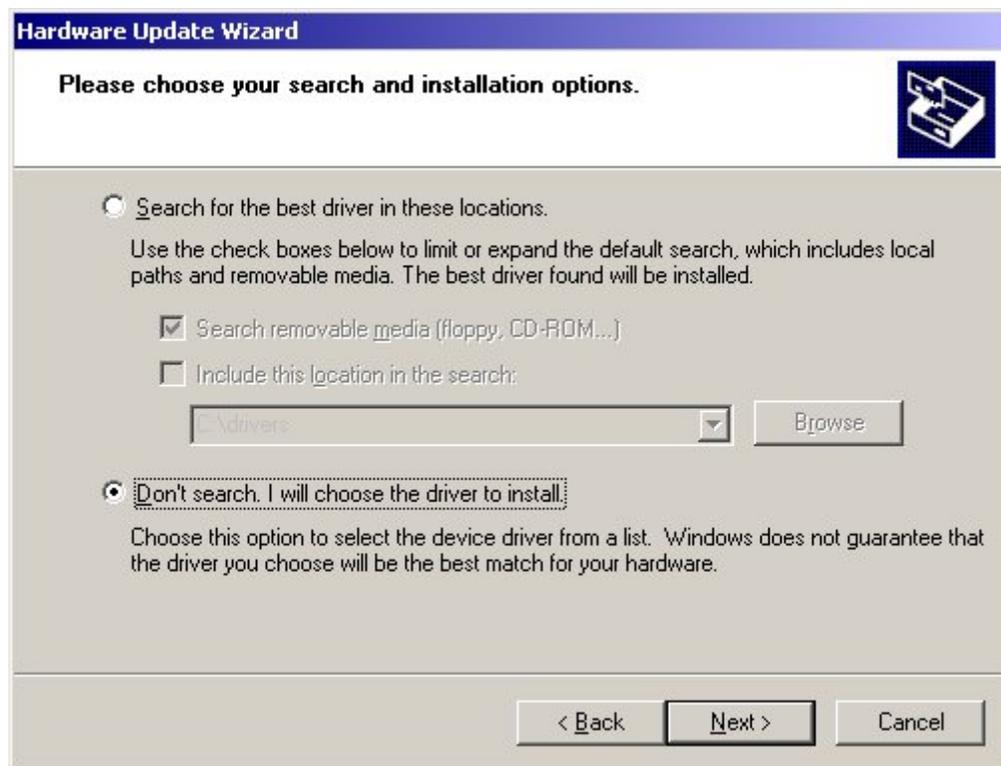


FIGURE 232. Hardware Update Wizard: search and installation options

15. Select the “Don’t search” option.
16. Click Next.

17. The Hardware Update Wizard displays a new window requesting you to select a device driver.

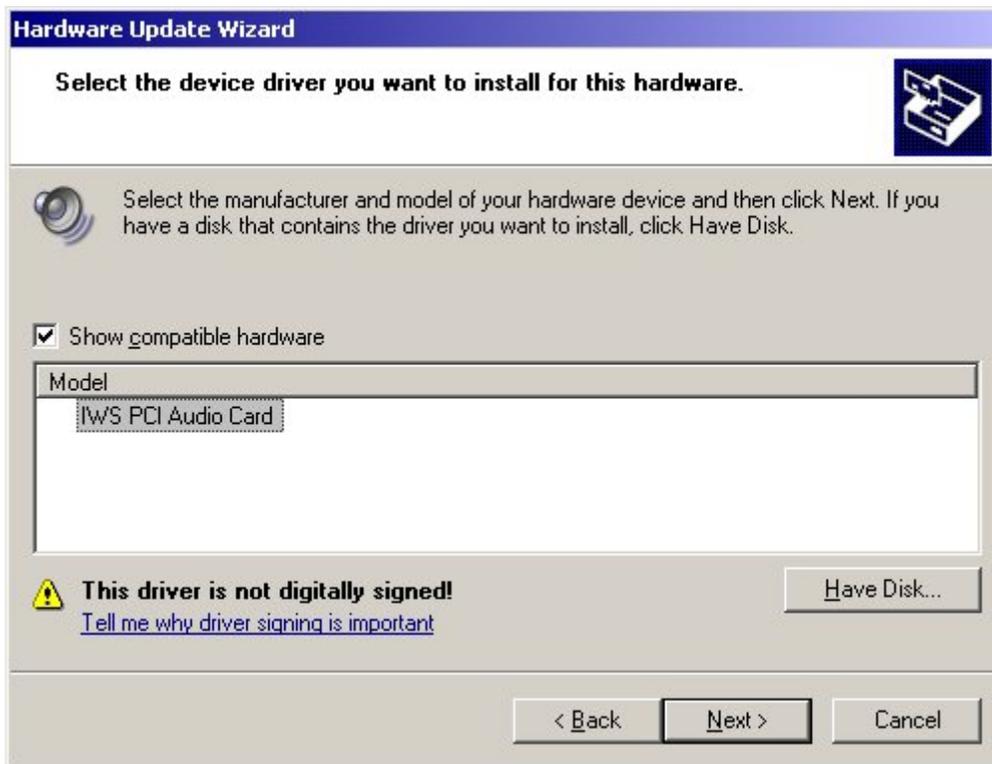


FIGURE 233. Select the driver device window

18. Click on the “Have Disk” button. This opens the Install From Disk window.

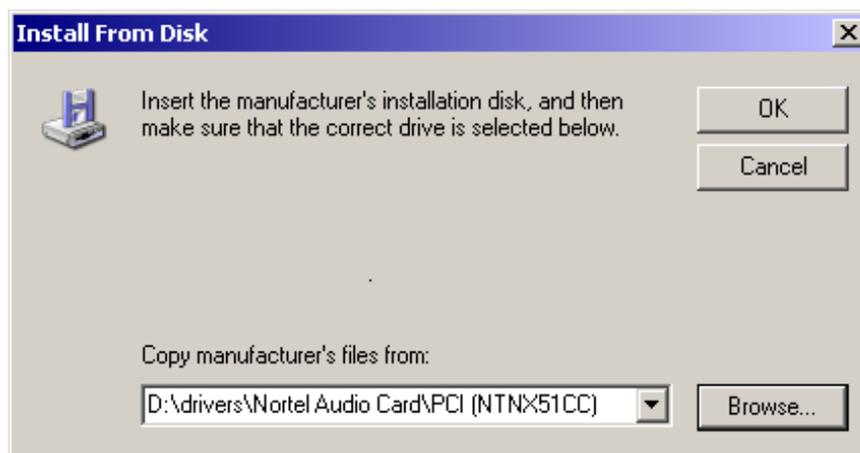


FIGURE 234. Install From Disk window

19. Select the Browse button and point to the location of the iwsacpci.inf file on the installation CD.
20. Click OK.
21. A new window appears requesting the device driver selection.

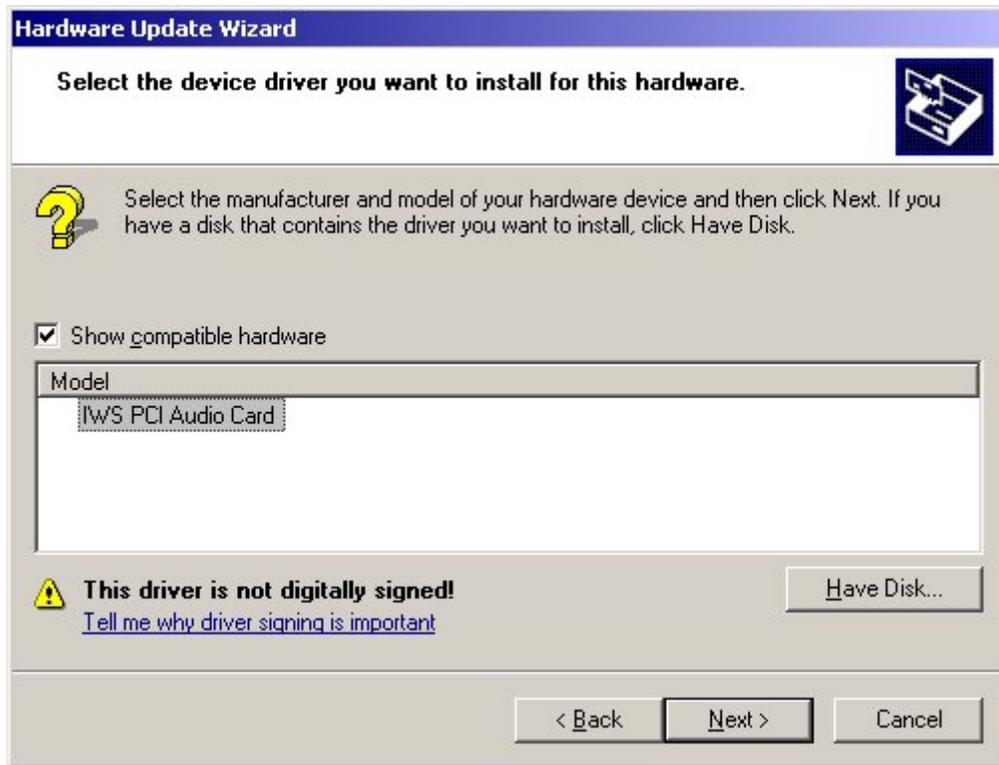


FIGURE 235. Select the device driver window

22. Select the IWS PCI Audio Card.
23. Click Next.
24. The Hardware Installation Wizard displays a warning box indicating that the software has not been certified with Microsoft.
25. Select the Continue Anyway button to install the driver.

26. Once the installation is complete, the window in Figure 236 will appear.



FIGURE 236. Completing the Hardware Update Wizard window

27. Click Finish.

28. The Systems Setting Change window appears.

Note: It is necessary to reboot the computer for the new settings to take effect.

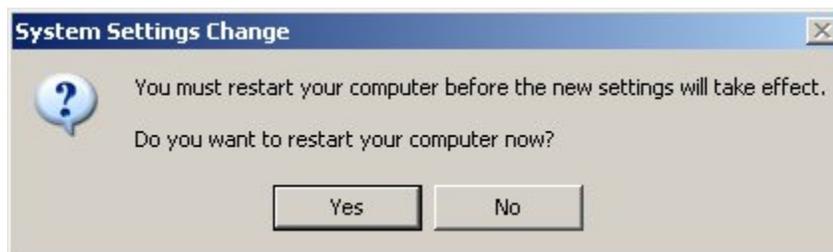


FIGURE 237. Systems Setting Change window

29. Click the Yes button to restart the computer.

15.2 Installing Device Drivers for the IWS ISA Audio Card

The IWS ISA Audio Card is not a Plug and Play device, so when the card is physically installed, the system will NOT detect it automatically or prompt the user for the necessary drivers.



The user must reserve the following resource in the BIOS BEFORE entering this ISA procedure:

IRQ Range of 10

VERIFY THIS ITEM BEFORE PROCEEDING!

15.2.1 Initial installation of the IWS ISA Audio Card device driver

After the card has been installed, the installer must use the Add Hardware Wizard to add the device. Follow the steps below:

1. To access the Add Hardware Wizard, open the Control Panel and select System.
2. Open the Systems Properties window.
3. Select the Hardware Tab.

4. Select the Add Hardware Wizard button as shown in Figure 238.

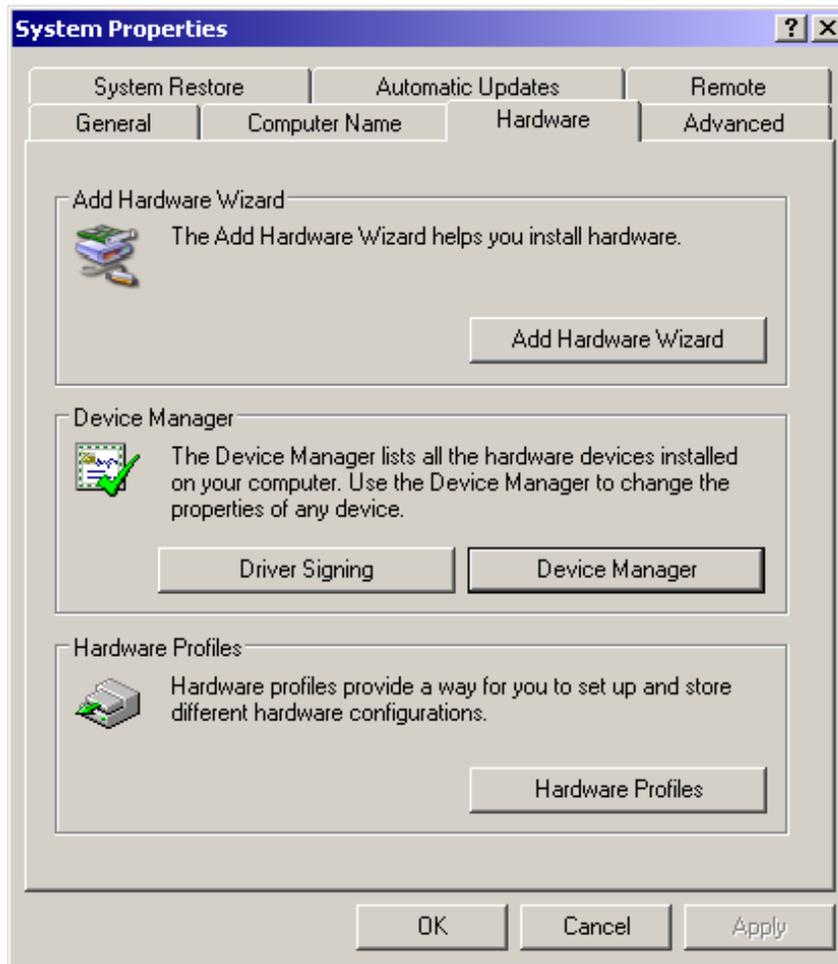


FIGURE 238. System Properties

5. This will bring up the window in Figure 239.



FIGURE 239. Add Hardware Wizard window

6. Click the Next button to continue.

7. The Wizard will prompt you as to whether or not the hardware has already been connected.

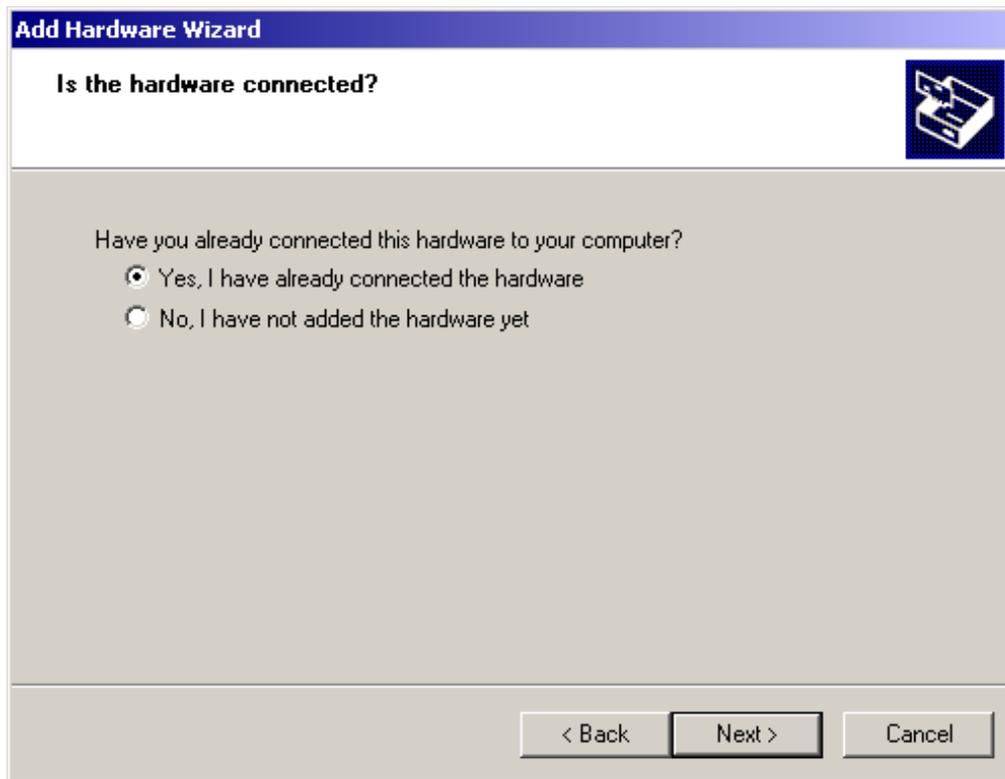


FIGURE 240. Is the hardware connected window

8. If the hardware is connected, select Yes, and then click on the Next button.

9. This will bring up a list of hardware already installed on the computer.

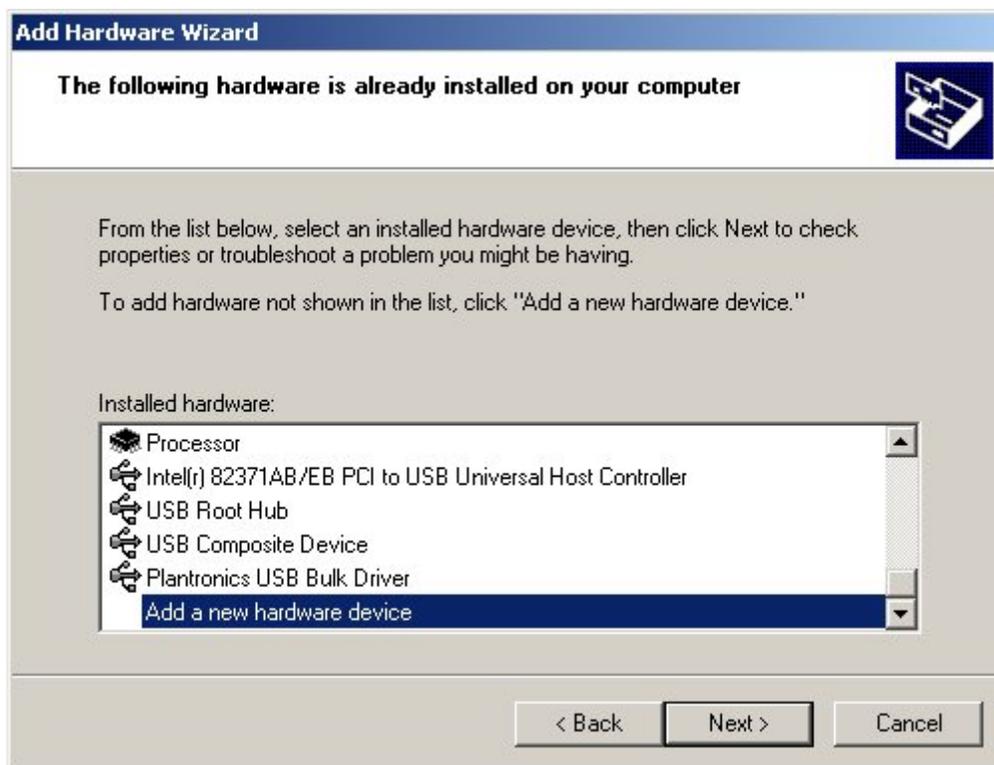


FIGURE 241. Hardware installed list

10. Scroll to the bottom of the installed hardware list and select "Add a new hardware device."
11. Click on the Next button.

12. The option is offered to either search automatically or install manually.

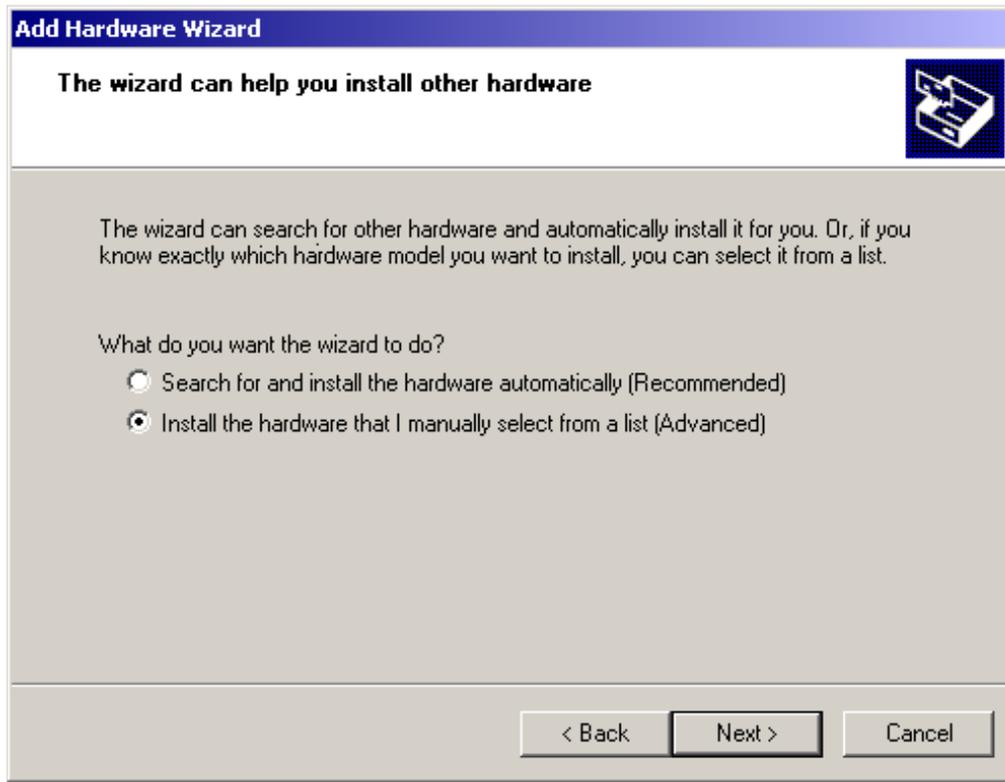


FIGURE 242. Installing other hardware window

13. Select the option to indicate manual selection from a list.

14. Click on Next.

15. The Hardware selection type window appears.

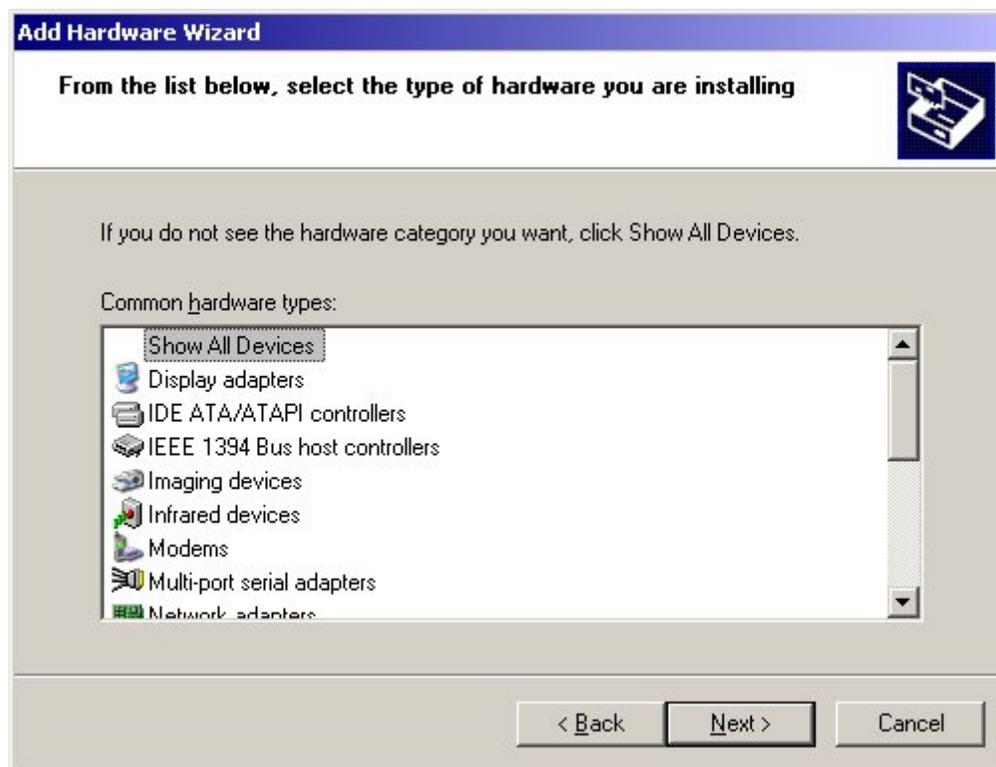


FIGURE 243. Hardware selection type window

16. Select “Show All Devices.”

17. Click Next.

18. The Select device driver window appears.

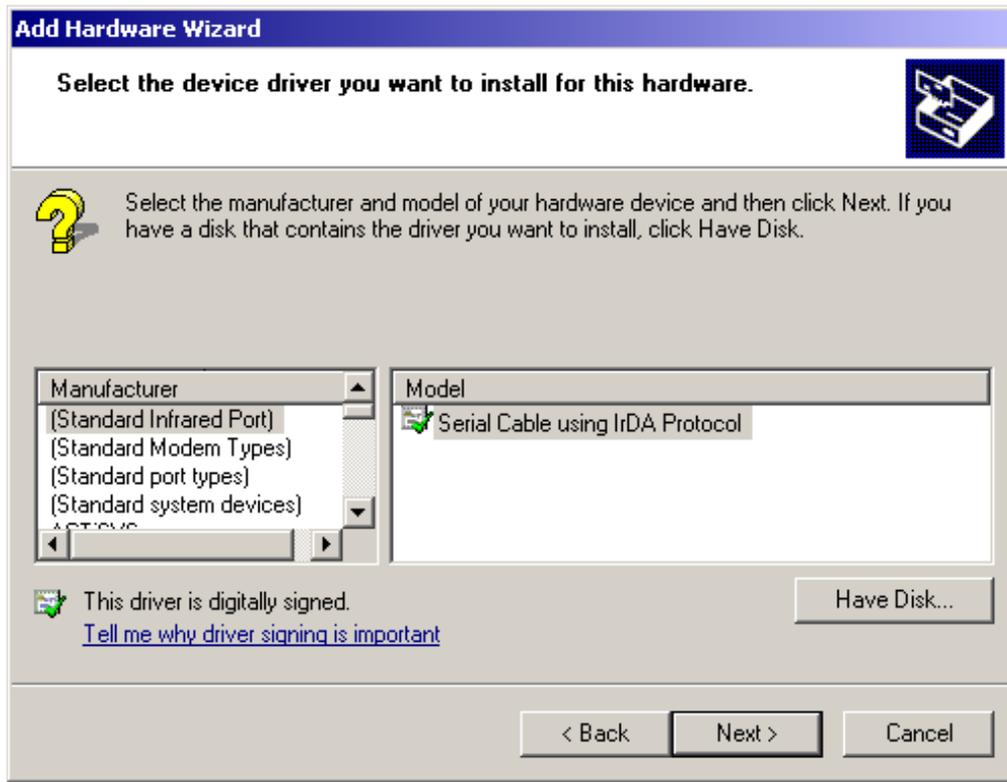


FIGURE 244. Select device driver window

19. Select the Have Disk Button. This will bring up the Install From Disk dialog box.

20. Select the Browse option and point to the iwsacisa.inf file on the IWS Installation CD, located in the D:\drivers\NortelAudioCard\ISA (NTNX52BC) directory.
21. Select Open. The Install From Disk window will reappear with the location of the files as in Figure 245.

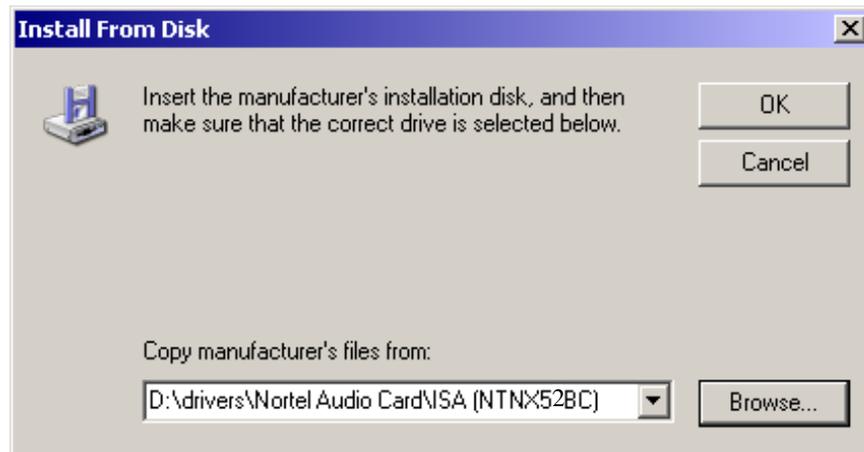


FIGURE 245. Install From Disk, driver directory

22. Click on the OK button.

23. The Add Hardware Wizard window appears.

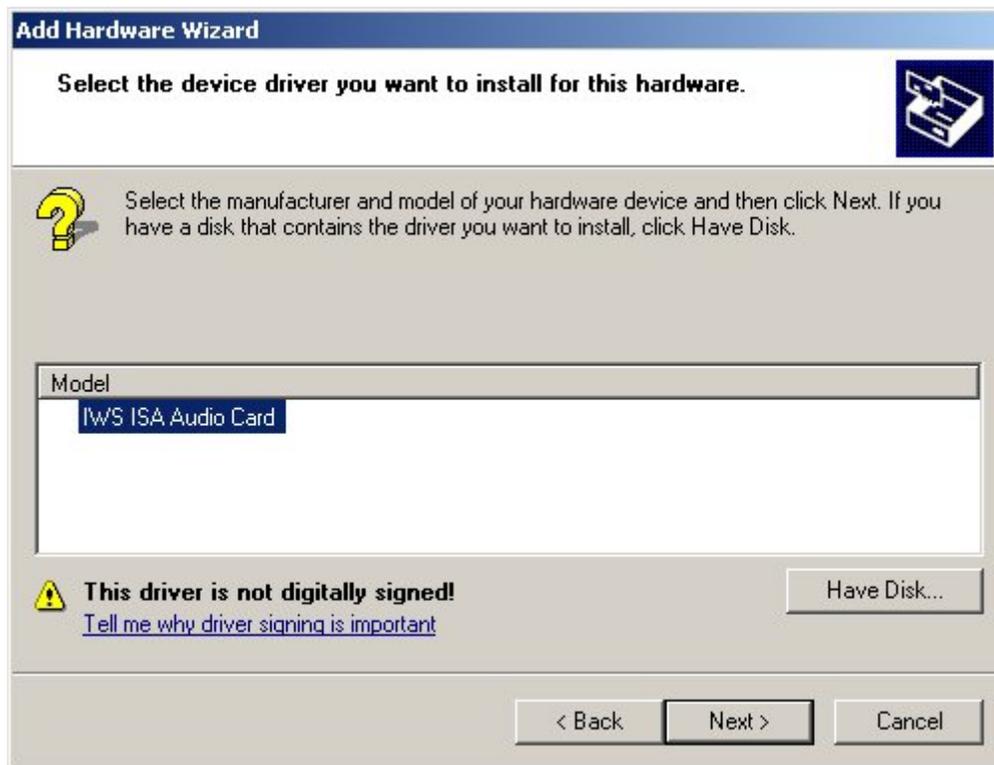


FIGURE 246. Add Hardware Wizard window

24. Select the IWS ISA Audio Card.

25. Click on Next.

26. The Wizard provides an alert that it is ready to install your hardware.



FIGURE 247. Add Hardware Wizard: ready to install window

27. Click on Next.
28. The Hardware Installation Wizard will display a warning box indicating that the software has not been certified with Microsoft.
29. Select the Continue Anyway button to install the driver

30. The Complete the Add Hardware Wizard window appears.



31. After the installation is complete, click the Finish button.

32. The System Properties window reappears.

33. Verify that the IWS ISA Audio Card installed properly by following the steps in section 15.2.2.

15.2.2 Verifying the installation of the IWS ISA Audio Card device

After restarting the computer, verify that the IWS ISA Audio Card device has been successfully installed. To verify a successful installation, follow these steps:

1. Go to Control Panel.
2. Select System.
3. Select Device Manager.
4. Click on the “+” to open the “Sound, video and game controllers.” The IWS Audio Card should be displayed here.

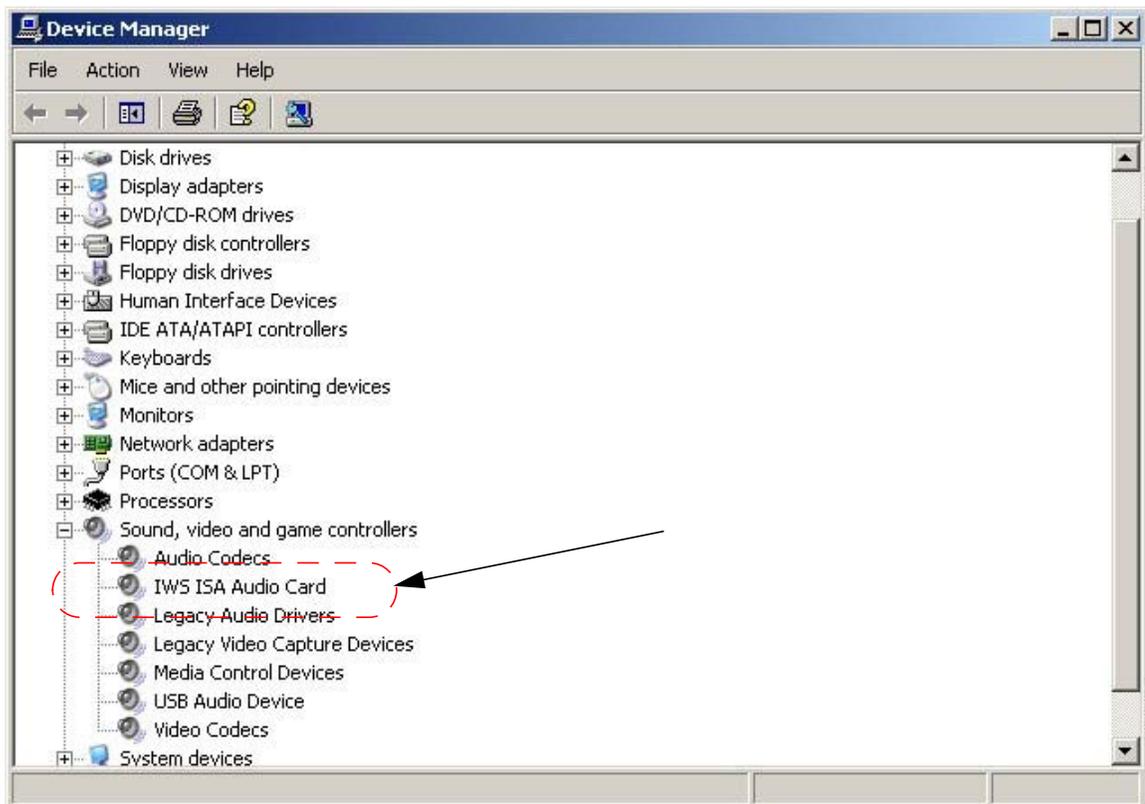


FIGURE 248. System Properties window

5. Select the IWS Audio Card and right click with the mouse, choosing Properties.

6. The IWS ISA Audio Card Properties General page should indicate that the device is working properly.
7. Select the Driver tab.
8. Select the Driver Details button.
9. The iwsacisa.sys device driver should be displayed in the list of driver files.

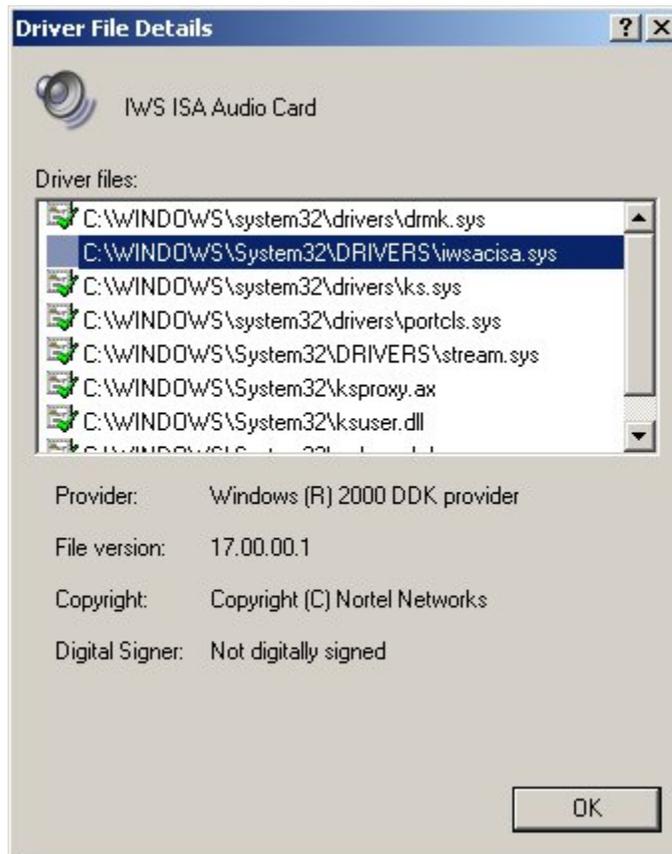


FIGURE 249. Driver File Details

10. Click the OK button.

15.2.3 Upgrading Device Drivers for the IWS ISA Audio Card

In the event that a new version of the IWS ISA Audio Card Device Driver is released, the system must be updated with the new version. To do this, follow these directions:

1. Open the Control Panel.
2. Select System
3. Select Device Manager.
4. From within the Device Manager window, click on the “+” to open the select Sound, video and game controllers.
5. Select IWS ISA Audio Card.

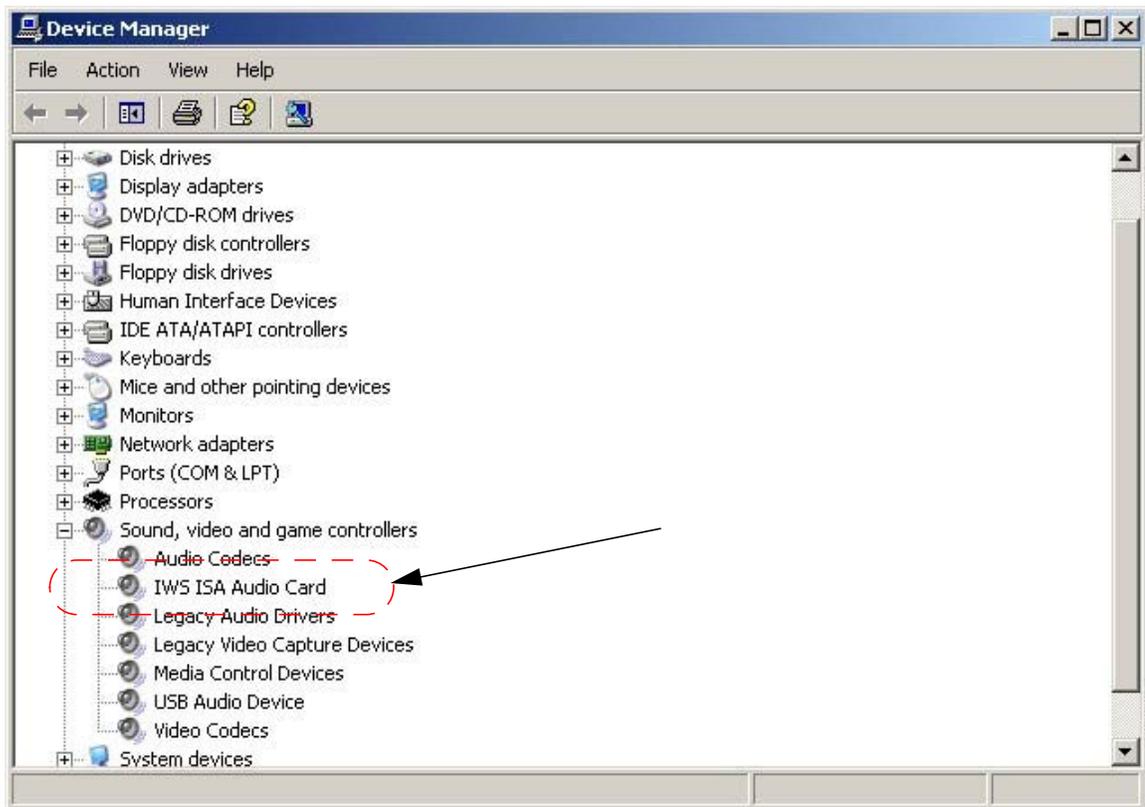


FIGURE 250. System Properties window

6. Right mouse click on it, and select Properties.

7. The IWS ISA Audio Card Properties window should open.
8. Select the Driver Tab.
9. Click on the Update Driver button.
10. This will bring up the Hardware Update Wizard.



FIGURE 251. Hardware Update Wizard

11. Select “Install from a list or specific location (Advanced)”.
12. Click on the Next button.

13. A new window will appear requesting you to choose your search and installation options.

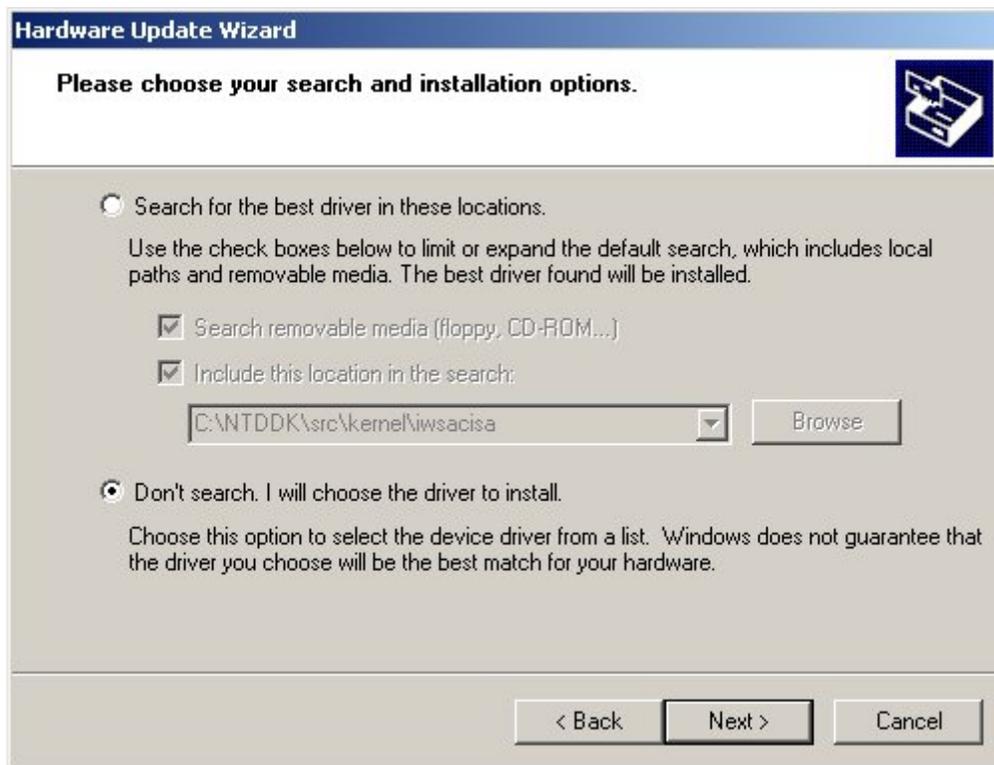


FIGURE 252. Choose your search and installation options window

14. Select the “Don’t search” option.
15. Click on the Next button.

16. A new window will appear for you to select the device driver.

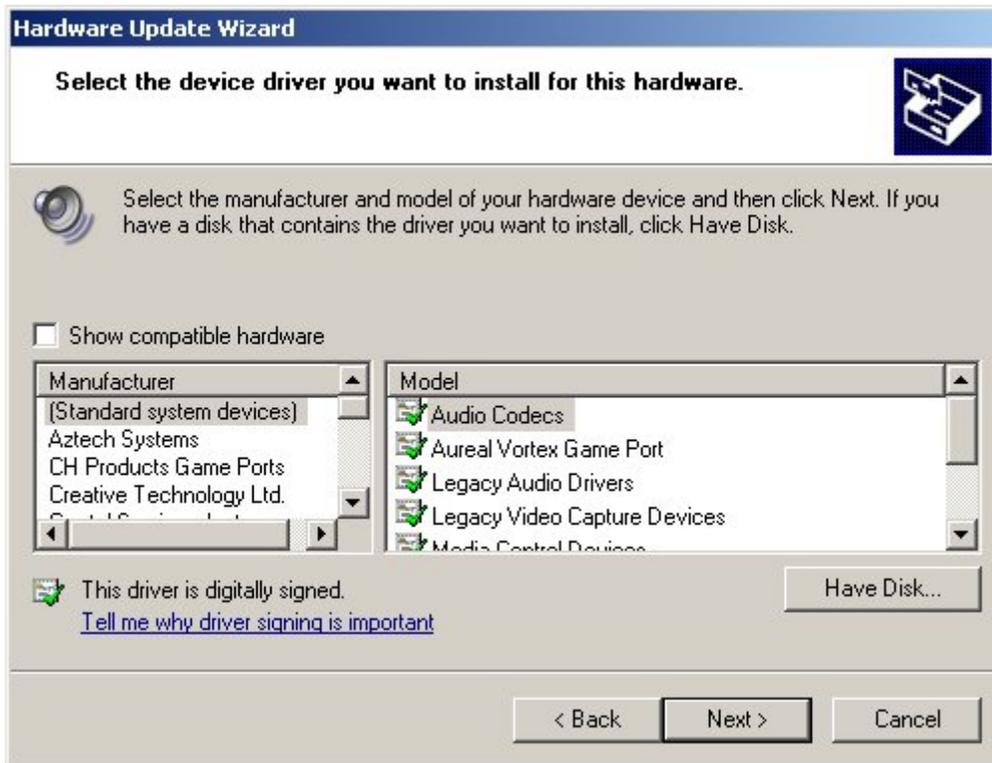


FIGURE 253. Select device driver window

17. Select the Have Disk Button. This will bring up the Install From Disk dialog box.

18. Select the Browse option and point to the iwsacisa.inf file on the IWS Installation CD, located in the D:\drivers\NortelAudioCard\ISA (NTNX51BC) directory.

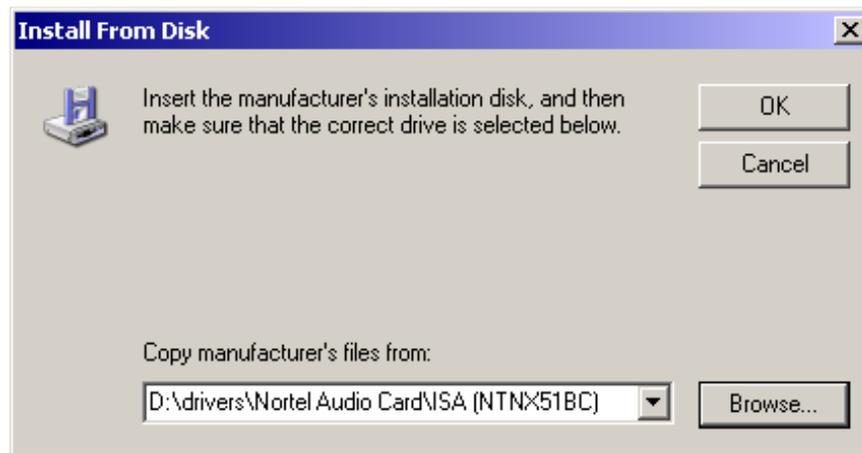


FIGURE 254. Correct drive for install disk

19. Click on the OK button.

20. A new window appears with the available drivers from that location.

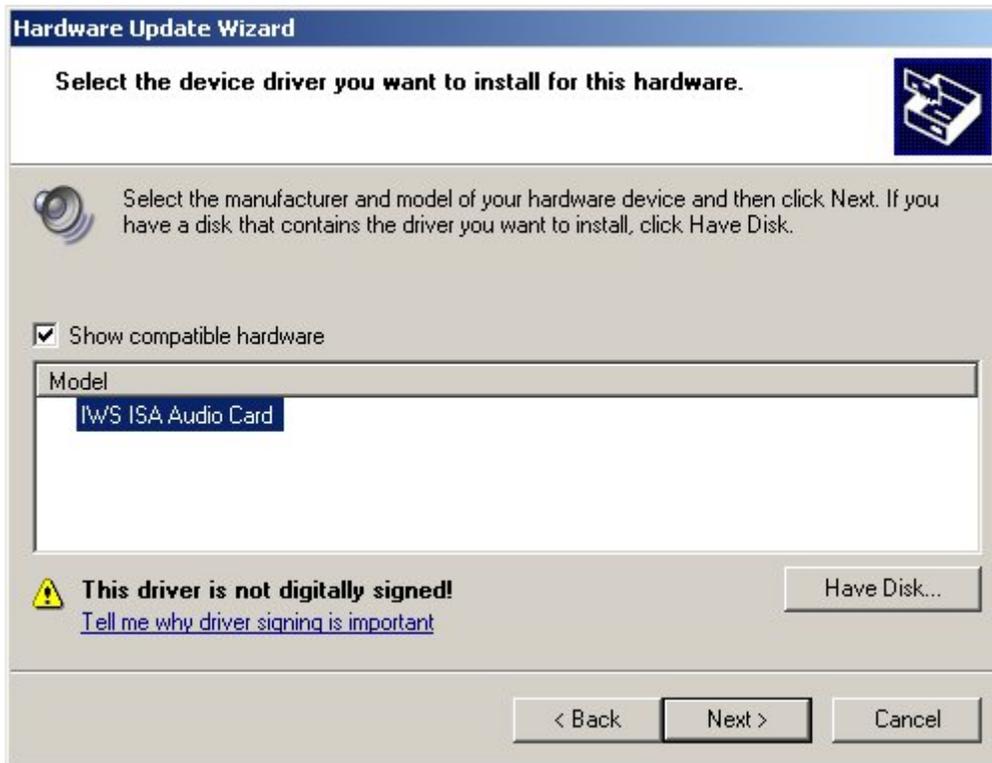


FIGURE 255. Driver selection window

21. Select IWS ISA Audio Card and click on the Next button.
22. The Hardware Wizard will display a warning box indicating that the software has not been certified with Microsoft.
23. Click on the Continue Anyway button.

24. The Completing the Hardware Update Wizard window appears.



FIGURE 256. Completing the Hardware Update Wizard window

25. After the installation is complete, click the Finish button.

26. The Systems Setting Change window appears.

Note: It is necessary to reboot the computer for the new settings to take effect.



FIGURE 257. Systems Setting Change window

27. Click the Yes button to restart the computer.

16.0 Appendix D: Installing Device Drivers for the IWS Keyboard Filter

To install the IWS Keyboard Filter Device Driver, follow these steps:

1. Open the Control Panel.
2. Select System.
3. Right mouse click to bring up the System Properties window.

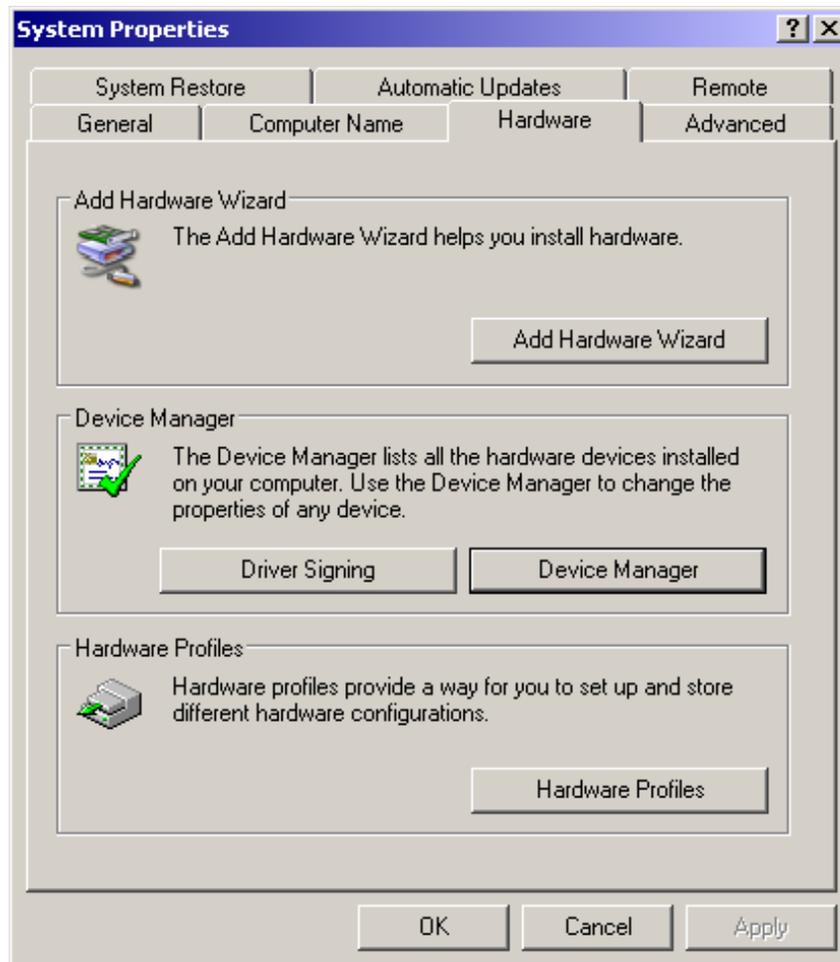


FIGURE 258. System Properties

4. Click on the Hardware tab.
5. Click on the Device Manager button.

6. The Device Manager windows opens.

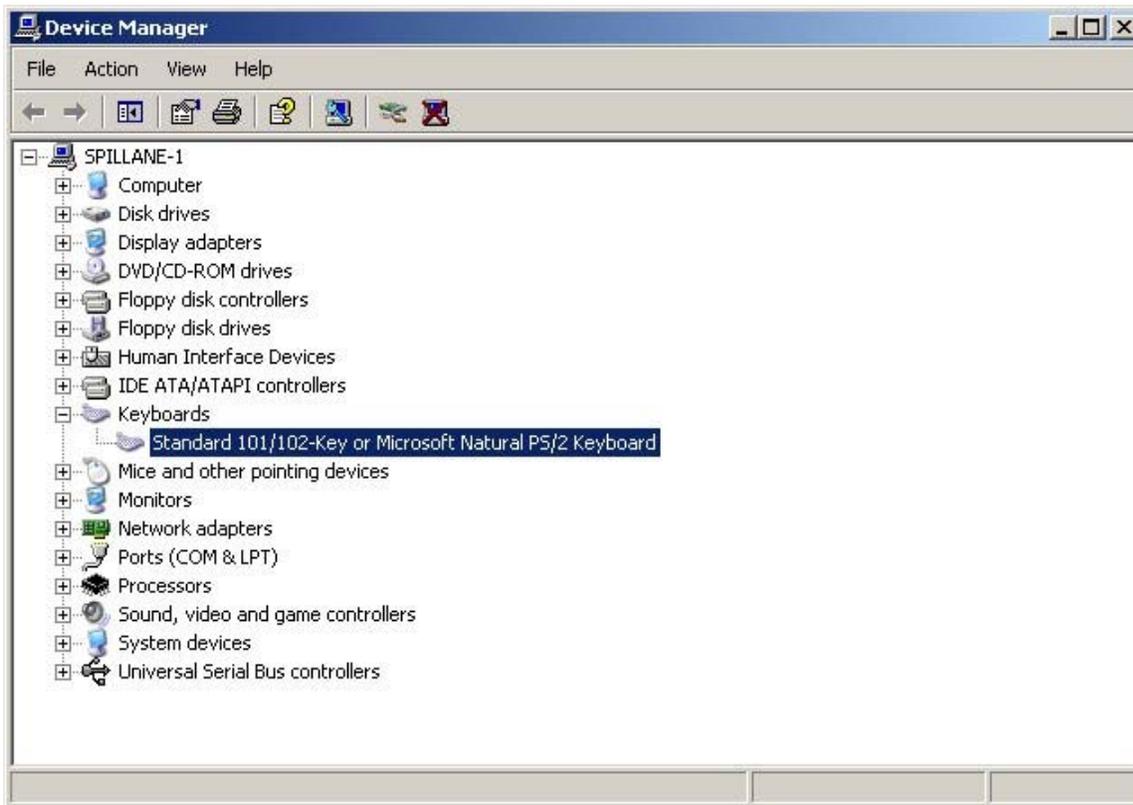


FIGURE 259. Device Manager window

7. If the Keyboards icon is not already expanded, click on the “+” to make it display as in Figure 259.
8. Select the item named, “Standard 101/102-Key or Microsoft Natural PS/2 Keyboard” with a single mouse click.
9. Right mouse click on this icon and select the Update Driver from the list.

10. The Hardware Update Wizard screen should appear as in Figure 260.



FIGURE 260. Welcome to the Hardware Update window

11. Select “Install from a list or specific location (Advanced).”
12. Click Next.

13. The window as in Figure 261 appears.

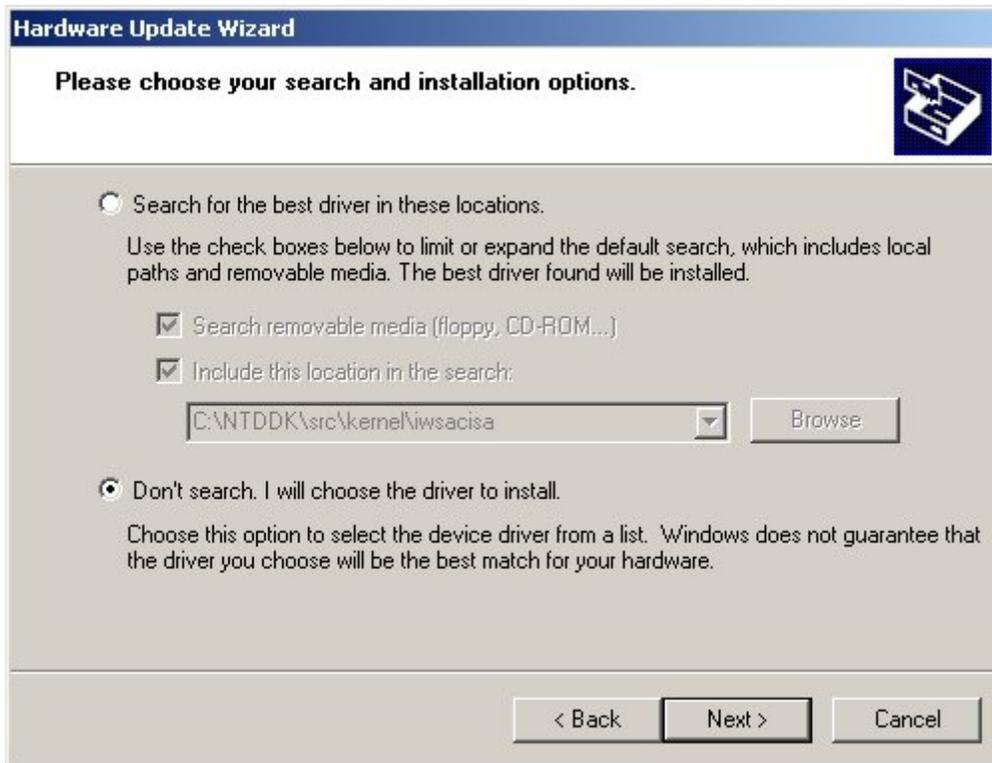


FIGURE 261. New Hardware Wizard completed screen

14. Select the “Don’t search. I will choose the driver to install.” option.

15. Click on the Next button.

16. The Select the device driver window appears.



FIGURE 262. Select the device driver window

17. Select the “Have Disk...” button. This will open the Install From Disk window.
18. Select the “Browse” button.
19. Double click on Drivers.
20. Double click on Nortel Keyboard
21. Locate and point to the iwskbflr.inf file on the installation CD, located in the D:\drivers\Nortel Keyboard directory.
22. Select Open. The Install From Disk window will reappear with the location of the files as in Figure 263.



FIGURE 263. Install From Disk window

23. Select OK.
24. The Select device driver window appears.

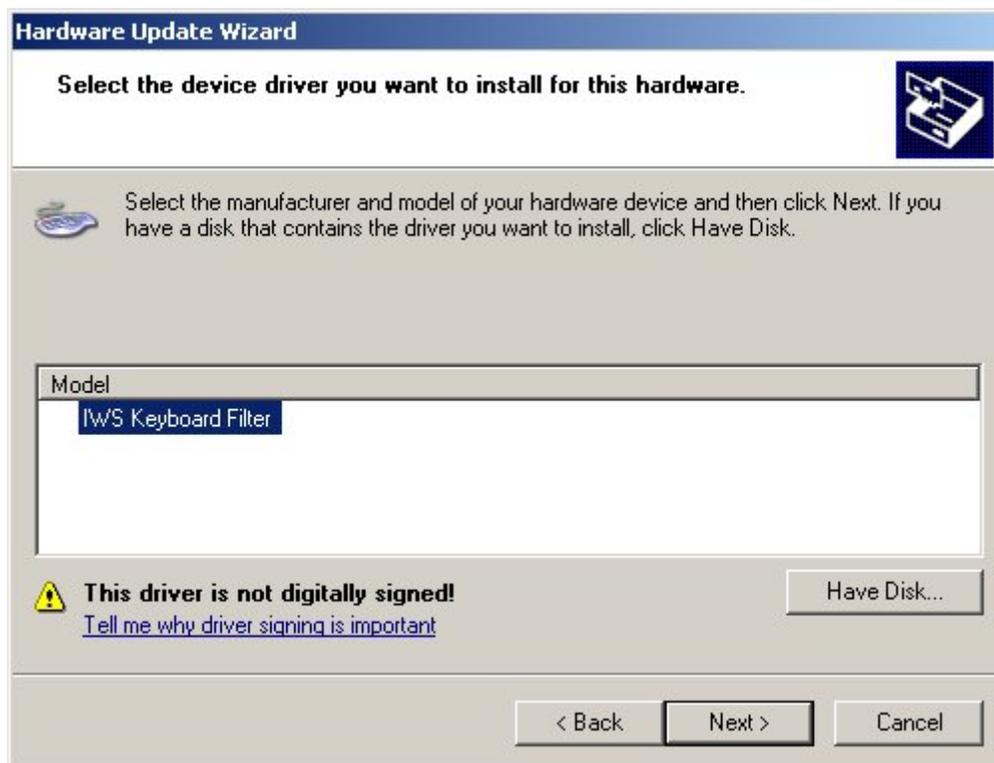


FIGURE 264. Select device driver window

25. Select the IWS Keyboard Filter and click Next.

-
26. An Update Driver warning window appears. Select Yes.
 27. The installation begins, and then the Hardware Installation window appears.



FIGURE 265. Hardware Installation warning

28. Click the Continue Anyway button.

29. The Completing the Hardware Update Wizard window appears.



FIGURE 266. Completing the Hardware Update Wizard window

30. After the Wizard has completed the update, click on the Finish button.

31. The Systems Setting Change window appears.

Note: It is necessary to reboot the computer for the new settings to take effect.



FIGURE 267. Systems Settings Change window

32. Select Yes to restart the computer.

33. After the system has restarted, verify that the IWS Keyboard Filter has been installed. Go to Control Panel, System, Hardware, Device Manager.

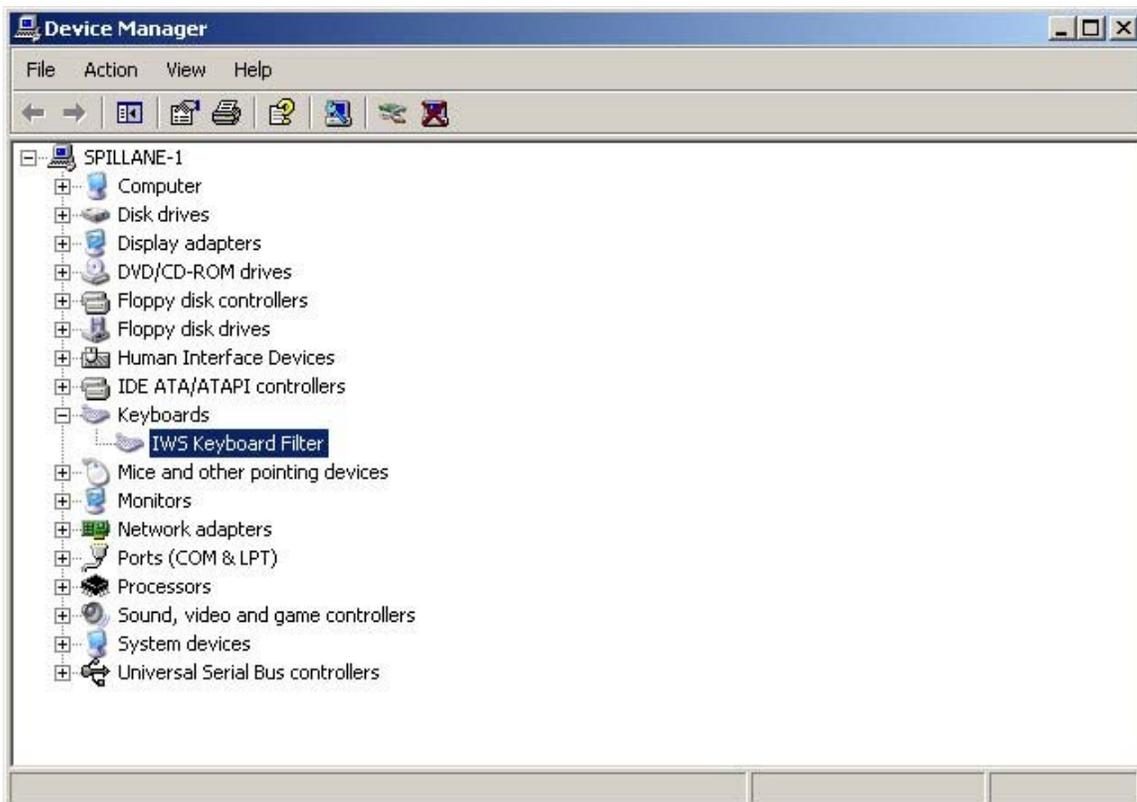


FIGURE 268. Device Manager window

34. Select the IWS Keyboard Filter under Keyboards, right click and select Properties.

35. Select the Driver Tab.

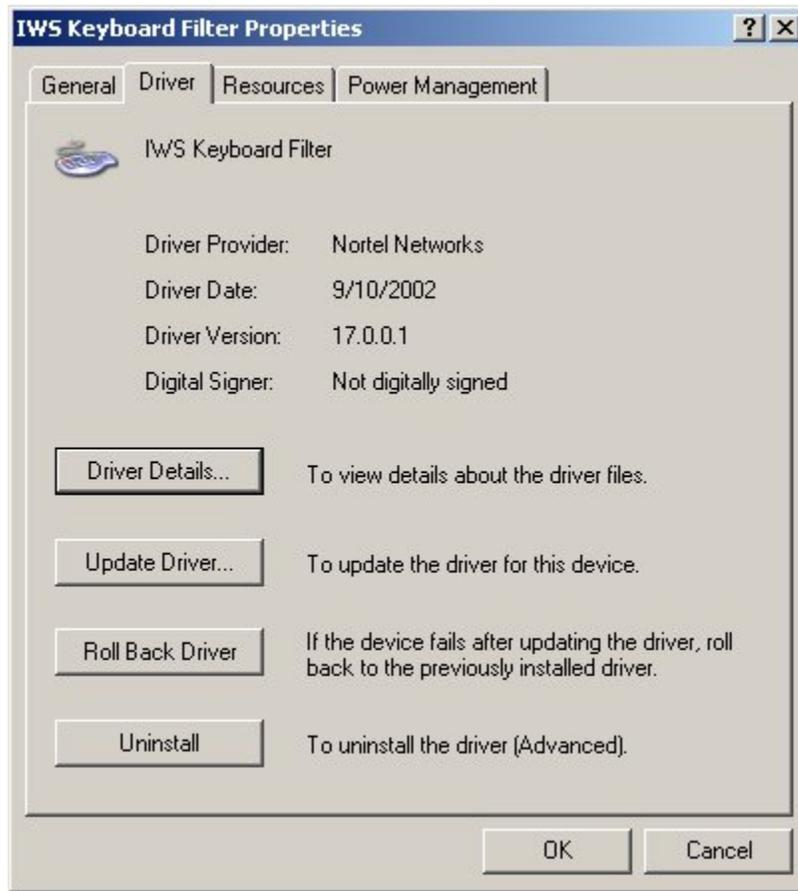


FIGURE 269. Driver tab

36. Click on Driver Details.

37. The Driver File Details window appears.

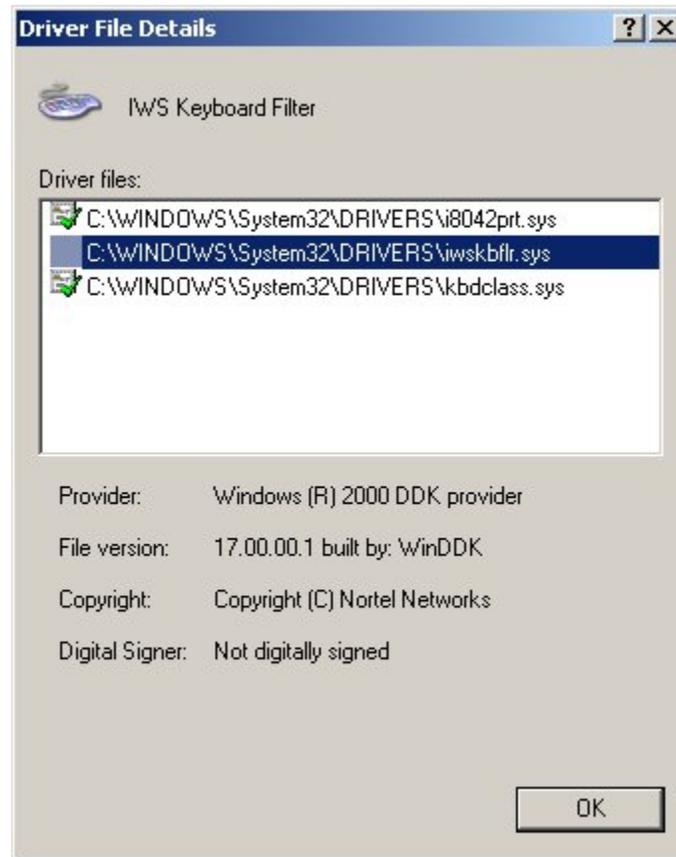


FIGURE 270. Driver File Details window

38. Verify that the iwskbflr.sys file appears in the list of drivers.
39. Click OK to exit the window.

17.0 Appendix E: Plantronics headset

The Plantronics DA60 USB Audio device/headset is required for IP positions. The DA60 has an internal DSP and a USB-to-headset adapter, and is installed by insertion into the USB port of the PC. Windows XP Professional's Plug and Play software will detect the new device and perform the installation without any further required software. The actual headset component attaches to the audio device via a quick disconnect.



FIGURE 271. Plantronics DA60 USB-to-headset adapter

When the DA60 has been installed and is in use on an IWS IP position, the headset top should be connected/disconnected using the quick disconnect; the IWS software will be notified of the headset status. The DA60 should not be unplugged from the USB port or reinstalled while the IWS software is running.

17.1 Related Components

Plantronics offers two packaging versions of the same USB device, the DA55 and the DA60. The DA60 comes with an accompanying software package, the Persono Pro 2.0, which is not required or used by the IWS Software. For the purposes of integration with IWS software, the DA55 and the DA60 are synonymous. References in IWS documentation to the DA60 also apply to the DA55 version.

Various models of the headset top components that attach via the quick disconnect to the

DA60 are available from Plantronics. The [AUDIO] section of the MPXINI.INI file should be configured to match the model of the headset top being used. Refer to Chapter 7 for details.

In cases where dual headset support is desired for an IP position, a Y-cable for splitting the signal coming out of the DA60 to the headset if offered by Plantronics. This splitter (Plantronics part number 27019-03) will allow a second operator (e.g. supervisor) to sit with an operator and listen to the call.

17.2 DA60 Firmware

To work properly with IWS, the level of the DA60 firmware version must be at least USB 0102 DSP 0106. The current firmware version of the DA60 that is plugged into the USB port on an IWS IP position can be checked via RAMP profiling. Firmware updates for the DA60, along with the accompanying installation tool, are available at the Plantronics Web site (http://www.plantronics.com/north_america/en_US/da60/index.jhtml).

17.3 DA60 Headset hardware verification

In order to verify that the newly installed Plantronics DA60 Audio device/headset is working properly, there are a few tests that are available. These are applicable whether this is a first time installation of the headset, or if a question arises at a later date that there is some kind of audio problem on the position. They can be useful to help isolate where the audio problem is occurring.

To test out the DA60, follow these steps:

1. Open the Control Panel (Start Menu and then Settings). From the Control Panel, select the Sounds and Audio Devices icon. When the window appears, click on the Audio tab. A window similar to Figure 272 should appear.

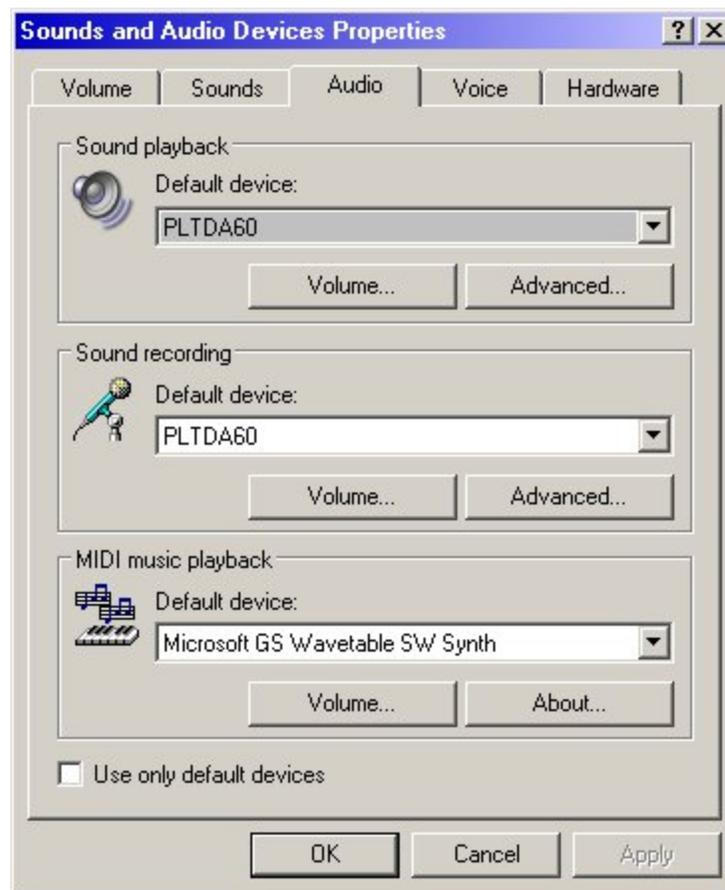


Figure 272. Appearance of the Sound and Audio Devices Properties, Audio tab

2. The Sound playback default device should be “PLTDA60” as seen in Figure 272. The Sound recording default device should also be “PLTDA60”.

3. When those settings are confirmed, click on the Voice tab.

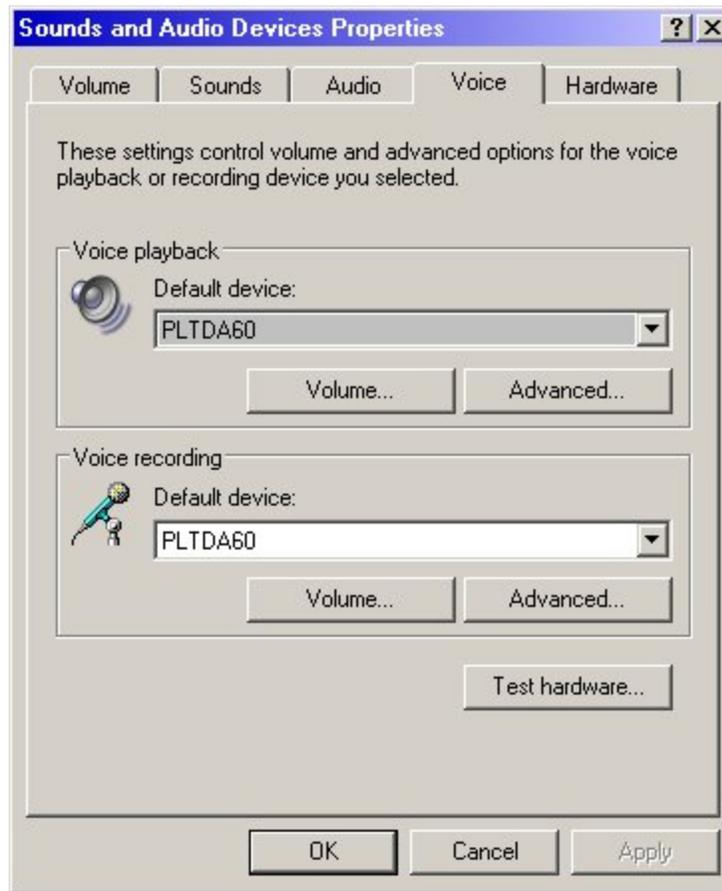


Figure 273. Appearance of the Sound and Audio Devices Properties, Voice tab

4. The Voice playback default device should be “PLTDA60”. The Voice recording default device should also be “PLTDA60”.
5. When those settings are confirmed, click on the Test hardware button to start the Sound Hardware Test Wizard.

6. The Sound Hardware Test Wizard will display the following screen:



Figure 274. Sound Hardware Test Wizard

7. Click on the Next button.

-
8. The window seen in Figure 275 will appear while the testing continues.

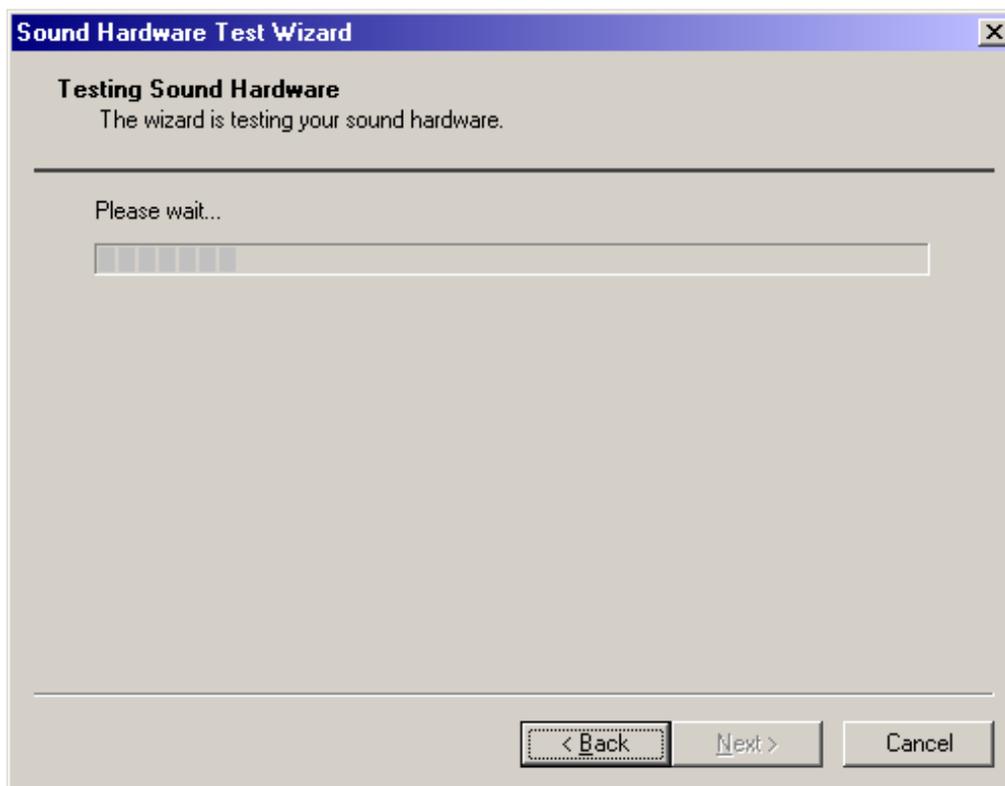


Figure 275. Wait while the hardware test wizard runs

9. After the sound hardware test is complete, a new window appears for the Microphone Test, as shown in Figure 276.

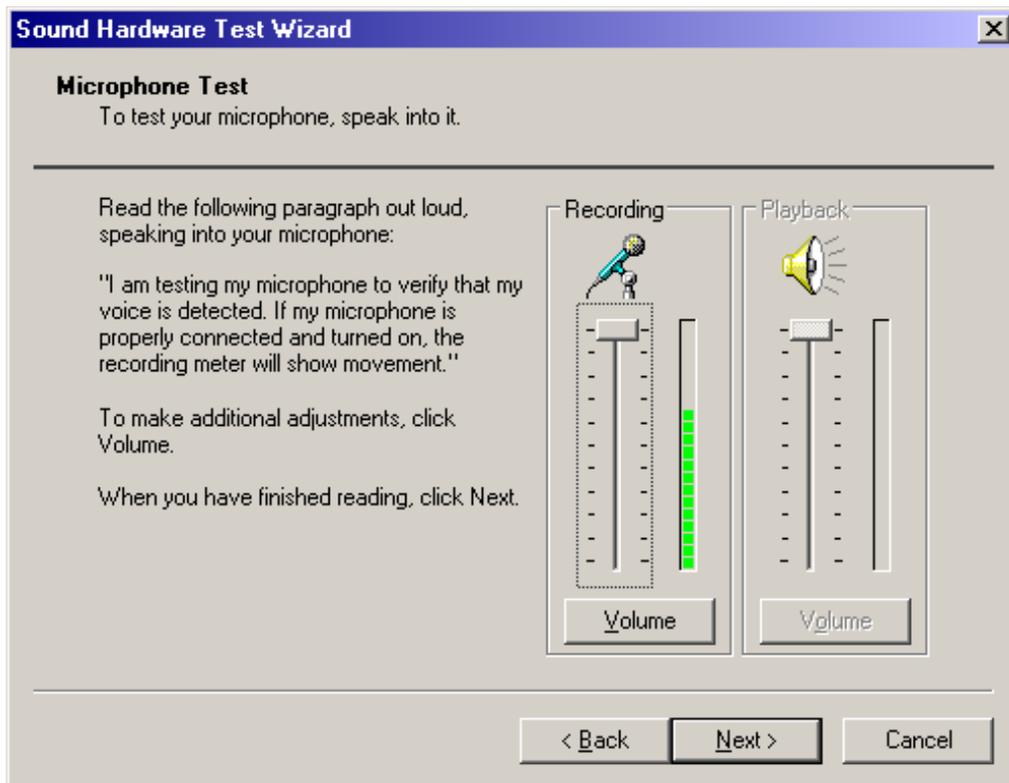


Figure 276. Microphone Test window

10. Follow the instructions to test the microphone. As you speak, the bar graph should move if it is receiving your input. Assuming this test passes, click on the Next button.

11. Now you will test the speakers. The window in Figure 277 will appear.

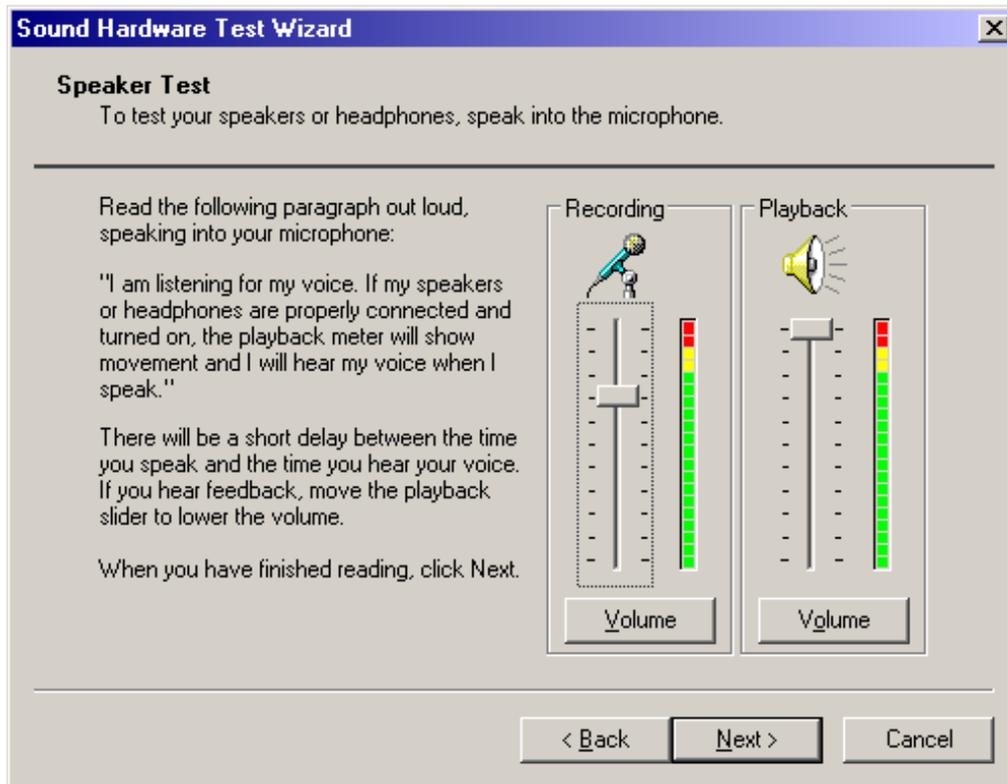


Figure 277. Speaker Test window

12. Follow the instructions to test the microphone out. As you speak, the bar graph should move if it is receiving your input. You should also hear the speech played back through the headphones with a delay. Assuming this test passes, click on the Next button.

13. After completing the speaker test, the Sound Hardware Test Wizard is complete.



Figure 278. Sound Hardware Test Wizard complete window

14. To conclude the test, click on the Finish button.

18.0 Appendix F: PCI audio card (NTNX52CC) flash loader



IMPORTANT:

The PCI audio card (NTNX52CC) flash loader is not supported in IWS 17.1. These instructions are here to enable the user to upgrade to version 10.0 or higher BEFORE installing Windows XP Professional.

THIS MUST BE DONE WHILE STILL IN WINDOWS 95.

As of IWS 17.0, Nortel Networks no longer supports flashing the ROM.

All currently supported IWS software releases require version 10.0 or higher of digital signal processor (DSP) firmware. The current version of DSP firmware is included in the IWS software, but if you are upgrading your IWS software you may also need to upgrade your version of firmware. The following procedure describes how to determine what release of DSP firmware you have and provides instructions for updating it if necessary.

18.1 Hardware requirements

The following equipment is required:

- a Nortel Networks-supported computer platform
- a properly installed NTNX52CC PCI audio card
- the FlashLoader program (part of the IWS base software)

18.2 Flash loader procedure

After you load a new release of IWS software, ensure that you are running the correct version of DSP firmware for the PCI audio card.

For the flash loader procedure to work correctly, the IWS position **must** be equipped with the NTNX52CC PCI audio card and current IWS software, in addition to Release 10.00 or higher DSP firmware.

If the DSP firmware is not at version 10.00 or higher, you must run the flash loader software to upgrade it. To install the firmware, follow the steps in this procedure:

At the Windows 95 desktop

1. Press **Ctrl+Esc** to open the Start menu.
2. Press **R** to open the Run menu.
3. Type `c:\mpxbase\tools\flash32` and press **Enter** to display the Flash32 Progress dialog box shown in Figure 280.

Note: If the audio card is not a PCI, or if the flash load is corrupted, an error message is displayed, as shown in Figure 279. If you are sure the position has a PCI audio card installed, select Yes to proceed. Otherwise select No. Selecting No takes you to the Flash32 Progress dialog box shown in Figure 280. To return from there to the Windows 95 desktop, select Cancel.

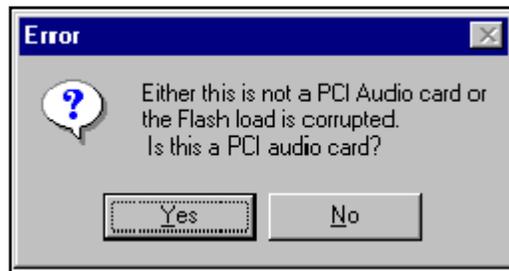


Figure 279. Flash32 error message

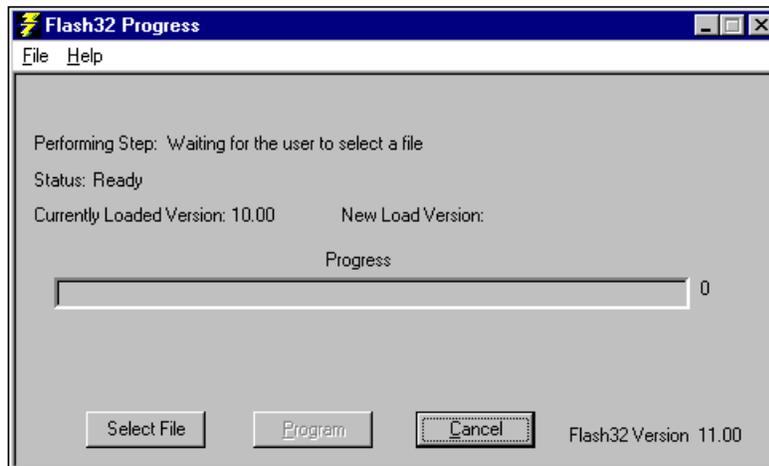


Figure 280. Flash32 Progress dialog box (Performing step)

18.2.1 Using the Flash32 Progress dialog box

In the Flash32 Progress dialog box, the Performing Step field displays a message that the program is waiting for you to select a file to load. The version of the Flash32 utility appears in the bottom right corner of the window. The currently loaded version of the firmware is shown below the Performing Step and Status fields.

In the Flash32 Progress window

1. If the proper firmware version is already loaded, select Cancel (or press **Alt+C**). If it is not, continue with the following steps.
2. Tab to the Select File button, and press **Enter** to display the Open window as shown in Figure 281.
3. If the directory displayed in the *Look in* field is not the Tools directory, then tab to the *Look in* field and use the arrow, **Tab**, and **Enter** keys to move through directories until you reach the Tools directory (path C:\Mpxbase\Tools).

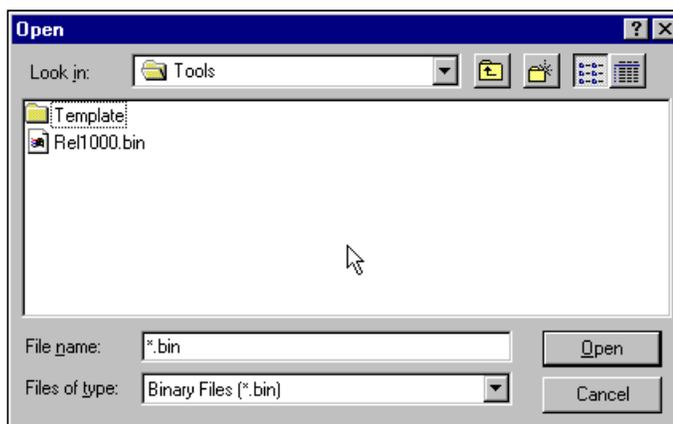


Figure 281. Open dialog box

Note: The audio card DSP firmware is listed as a binary file under the name Relxxxx.bin, where “xxxx” is the actual release number of the firmware. Multiple versions of DSP firmware may be shipped with a given IWS release.

4. Tab to the list of files and directories, use the arrow keys to select the desired file version, and press **Enter** to return to the Flash32 Progress window, shown in Figure 282.

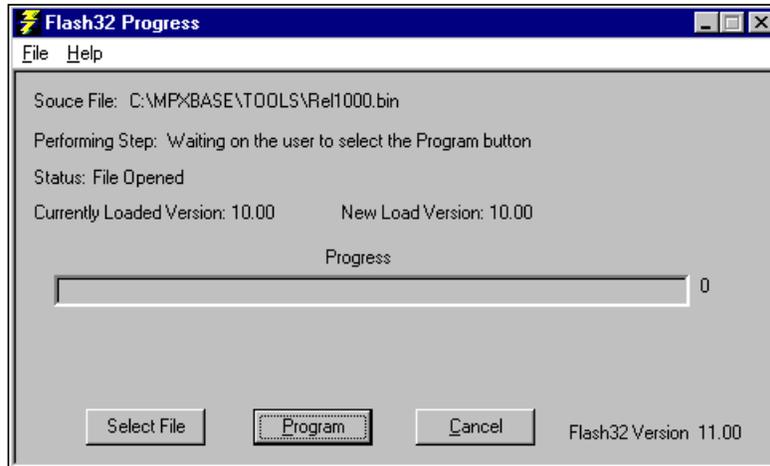


Figure 282. Flash32 Progress dialog box (Program)

Both the current and new firmware loads are displayed, and the Performing Step field prompts you to select the Program button.

5. Tab to the Program button and press **Enter**. As the installation runs, the Progress indicator band displays the progress, as shown in Figure 283.

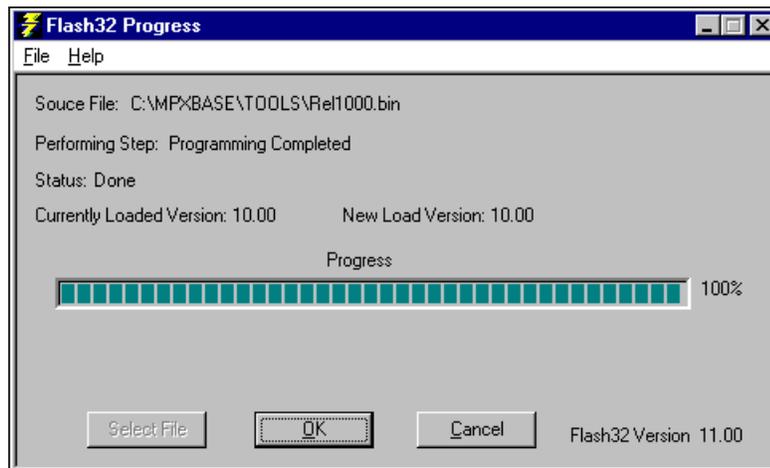


Figure 283. Flash32 Progress dialog box (Progress bar)

When the installation is complete, the Performing Step field displays, "Programming Completed," and the Progress indicator band appears completely filled in.

6. Select the OK button, and press **Enter** to close the flash loader program.
7. Press **Ctrl+Esc** to open the Start menu.
8. Press **U** to open the Shut Down Windows menu.
9. Tab to Restart the computer, and press **Enter** to reboot the position.

19.0 Appendix G: Windows XP Professional - Service Pack 2

Microsoft's Windows XP Professional - Service Pack 2 (SP2) may come pre-loaded on a new PC that you use for IWS. Alternately, the Microsoft Windows update facility can be used to install Service Pack 2. In either case, Service Pack 2 prevents IWS software from functioning properly until configuration changes are made to the updated operating system. This documentation does not go into detail of the Microsoft SP2 changes unless they directly effect the operation of IWS software.

Each user has to decide what level of security is appropriate for their site. Isolated IWS networks running on dedicated LANs may be able to accept a lower level of security. IWS positions running on shared corporate LANs that access the Internet may require a higher level of security. IWS software can work in either environment, but the high security environment requires more configuration setup.

In addition, every IP position that has SP2 installed on it, must install a mandatory patch P17113.

19.1 Security Center

Service Pack 2 changes Control Panel. One of these changes is the addition of a new Security Center. The Security Center brings together the status of the three main security items: Firewall, Automatic Updates, & Virus Protection. Microsoft appears to strongly encourage the usage of all these options. The interface makes it quite easy to turn these features on, but the Security Center does not provide a method to then turn these features off. Instead, you must go to the Control Panel to access each item to turn a security feature off.



FIGURE 284. Security Center

19.1.1 Firewall

For users deeming that the firewall functionality is not essential, turning it off will greatly simplify the process of making IWS function under SP2. Because Microsoft released SP2 well after IWS 17.1 was released, no integrated firewall solution exists. Subsequent IWS releases will have integrated support. Users requiring the firewall functionality can use a detailed set of instructions to manually configure the position. Please see Section 19.3 “Firewall” for more details.

19.1.2 Automatic Updates

Good computer maintenance practice dictates that keeping PCs up to date with the latest software updates is very important. Microsoft regularly releases updates to repair broken software or remove security vulnerabilities in the operating system. Despite this, this guide recommends turning OFF the Automatic Update feature. Microsoft’s Update functionality does not provide a feature to make it “aware” of the IWS software.

Therefore, the automatic update will occur whenever their software determines that it needs to occur. This may be in the middle of the night when no operators are logged into the position, or it may happen right in the middle of call processing. Since many of these updates are of a significant size (tens of megabytes) it is possible to impact the system performance during the download interval. Since that is unacceptable during call processing, turning off this functionality prevents this from happening. Updating the operating system should be done at a controlled time so there is no impact to operators.

19.1.3 Virus Protection

Currently, no virus protection software has been qualified as being compatible with IWS software. Existing commercial antivirus systems may work with IWS. However, until anti virus software is tested to ensure that it does not try to update its virus definition list during the middle of a call, there is no guarantee that there will not be any interaction issues. If a virus protection program is installed on your IWS PCs, this item would show the status of ON. Since there is not a qualified solution yet, there will be no further discussion on this item.

19.2 Alert Settings

Before proceeding to a detailed description of Firewall and Automatic Updates, action needs to be taken on this screen to disable the security alert bubble window. Microsoft prompts users to remind them to get the latest software updates and virus definition updates, or that the firewall is not turned on. This prompting can happen during call processing.

The method that Windows uses to accomplish this prompting is to create a small window originating in the system tray (lower right hand corner of the screen). This window has very high priority, so that it will appear on top of other windows. The effect is to pop on top of the IWS applications. Since an operator can do nothing about the condition being mentioned anyway, there is no reason for them to see these messages. To disable these windows from appearing, in the Security Center window find the link in the Resources group (on the left side of the screen) that says, “Change the way Security Center alerts me.” When this item is clicked upon, the following window appears:



FIGURE 285. disabling the security alert

Make sure to uncheck each of the three items. When complete, the window should appear as the figure above. Click on the OK button to exit. When you return to the Security Center window, close it as well.

19.3 Firewall

The Windows Firewall (WF) is a renamed version of the Microsoft Internet Connection Firewall (ICF) that originally came with Windows XP. The ICF was not enabled by default. It was up to the user to turn it on and configure it. Many users apparently were not bothering to do this, so Microsoft decided to turn WF on by default so that more users would get the added protection that firewalls provide. The Windows Firewall works by checking out network packets (both in-coming and out-going) to look for suspicious activity.

In-coming packets that would be considered suspicious would be packets coming from sources that are not the result of a local operation. So a request from the PC to an external server for a web page would generate a series of in-coming packets that are okay because the PC requested them. The appearance of in-coming packets that did not originate from a request may be the result of a snooping program trying to find out what computers exist on a network. These packets would be discarded unless the firewall is configured otherwise.

Out-going packets are considered suspicious if they are originating from software that the firewall is not aware of having the right to access the network. So if a computer became infected with a virus, the firewall would not allow the virus to access the network to replicate or attack other computers. This restriction directly impacts IWS software because the IWS needs to communicate across the network.

If the firewall is turned off, the blocking of the IWS applications is removed and IWS will function properly. For users requiring the the firewall functionality, a set of instruction is provided to make IWS software run under it.

19.3.1 Turning Windows Firewall OFF

To turn Windows Firewall functionality off, go to the Control Panel and select the icon for Windows Firewall. When you do, the following window appears:

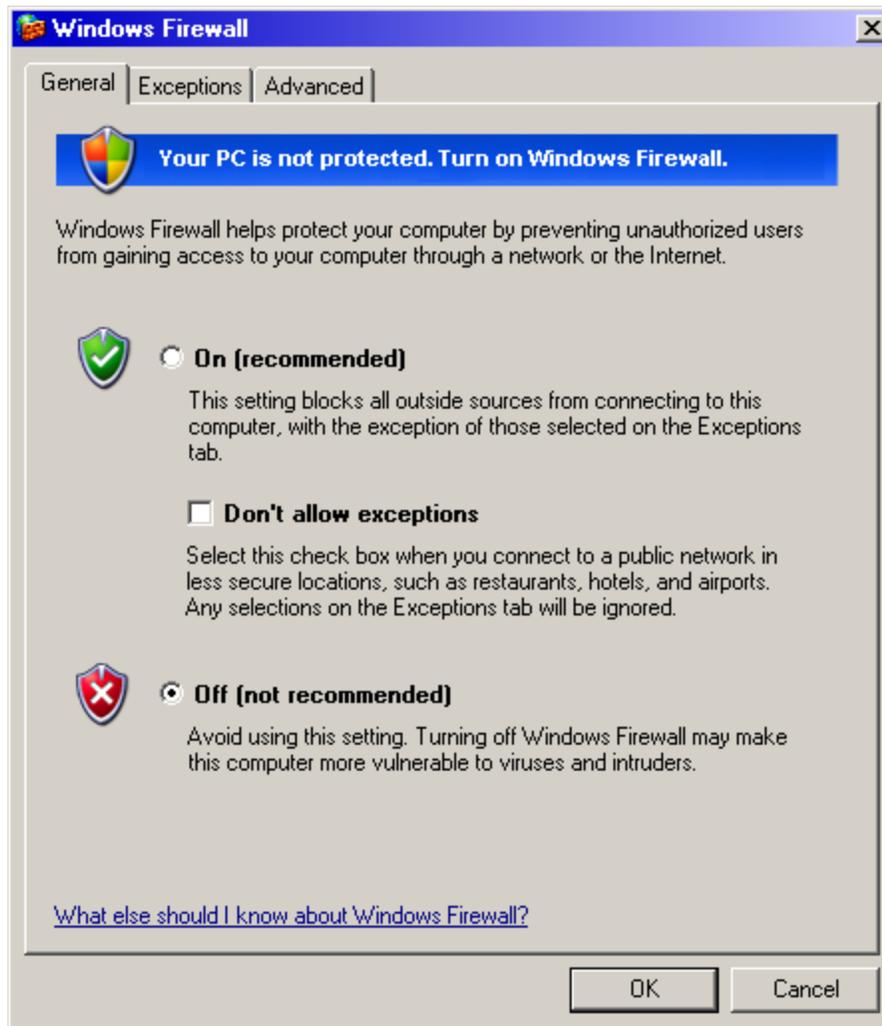


FIGURE 286. Turning Windows Firewall OFF

If not already selected, click the Off (not recommended) option, and then click on the OK button. In addition to turning the firewall off, some functionality related to ICMP, may need to be turned back on. Please refer to Section 19.4 “Re-enabling ICMP”.

19.3.2 Turning Windows Firewall ON

To turn Windows Firewall functionality on, go to the Control Panel and select the icon for Windows Firewall. When you do, the following window appears:

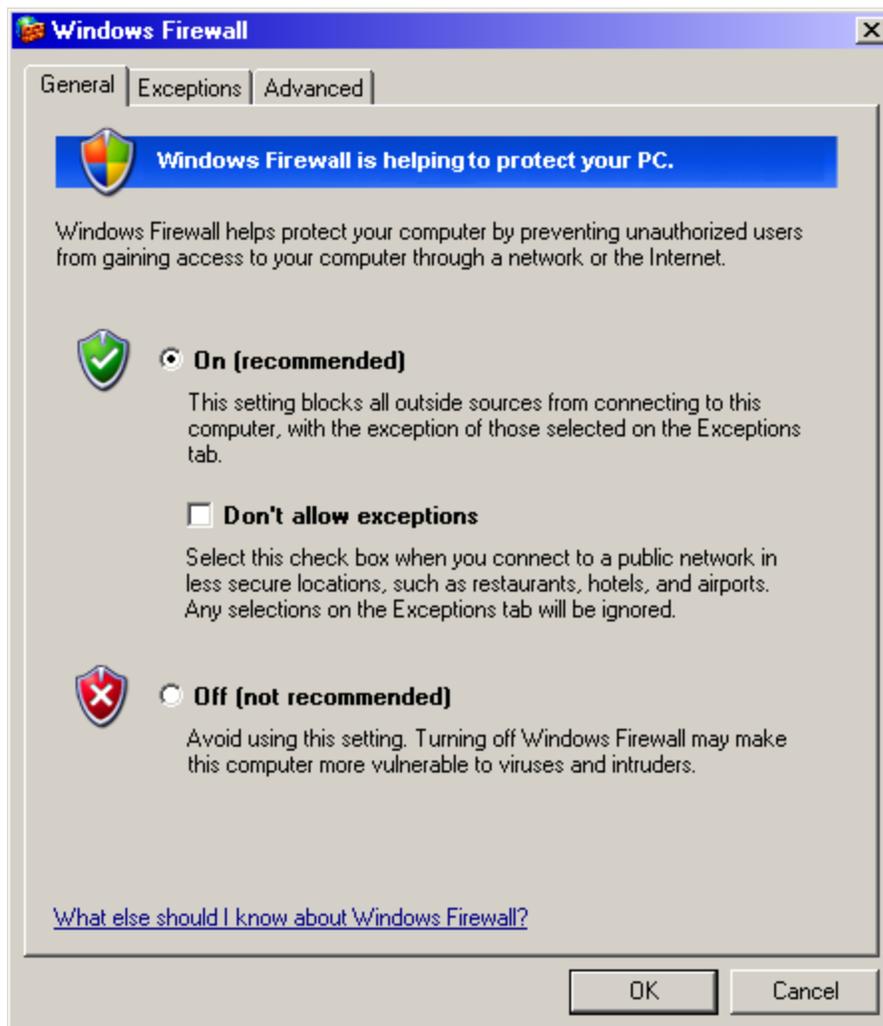


FIGURE 287. Turning Windows Firewall ON

If not already selected, click the On (recommended) option. Now that the firewall has been enabled, IWS software will not function because it does not have permission to access the network. To work around this, all IWS programs needing network access must be added to an exceptions list. A program in the exceptions list can access the network without filtering by the firewall. To proceed to the exceptions list, click on the Exceptions tab in this window.

The result of clicking on the Exceptions tab is to bring up the following window:

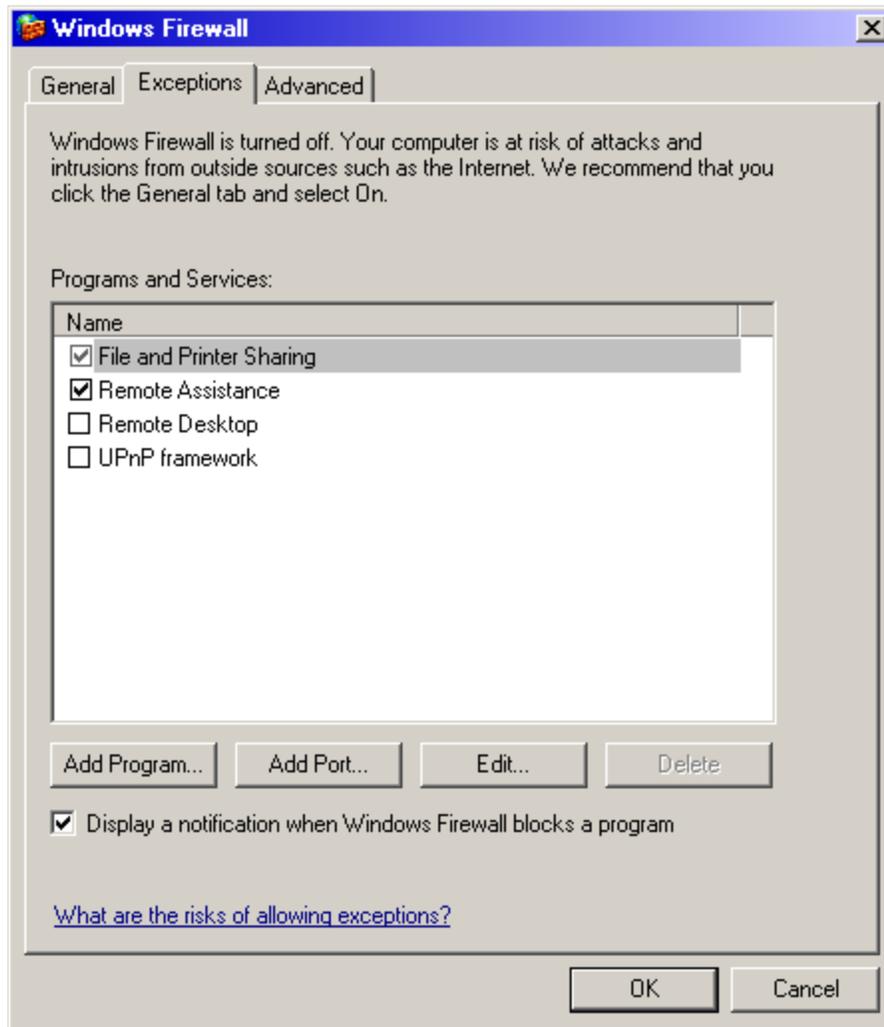


FIGURE 288. Exceptions tab

The actual entries in the Programs and Services box may vary, but the above illustration is typical. The list of IWS-related programs needing network access follows in this table.

TABLE 70. Programs needing network access

Network Accessing Program	Full Path to program
IWS Base Application	c:\mpxbase\mpxbase.exe
IWS Base HMI Application	c:\mpxbase\basehmi.exe
IWS Billing Application	c:\iwsntoa\ntoa.exe
IWS CASE Application	c:\mpxbase\case.exe
IWS EISA Application	c:\iwseisac\eisac.exe

TABLE 70. Programs needing network access

Network Accessing Program	Full Path to program
IWS FTP Server	c:\mpxbase\tools\pwftpd.exe
IWS Maintenance Gateway Application (TDM only)	c:\mpxbase\mpxmtcgw.exe
IWS NTDA Application	c:\iwsntda\ntda.exe
IWS OIA Application	c:\mpxoia\mpxoia.exe
IWS RAMP Application	c:\mpxbase\tools\ramp.exe
IWS RAMP Auxiliary Application	c:\mpxbase\tools\rmpaux.exe
IWS Voice Over IP Application (IP only)	c:\mpxbase\voipapp.exe
IWS WX25 Application (TDM only)	c:\mpxbase\wx25.exe

Depending upon the applications purchased and the position configuration, some of the above applications may not apply to your configuration. But for all the programs that do apply, each must be added to the exception list in order to function properly. This documentation will discuss how to do one addition manually. The same steps will apply for all the applications. Besides doing this manually, there is a command line interface from Microsoft that can be used to script these operations as well. This command line interface will be discussed later.

To add the first program in the table, IWS Base Application, click on the “Add Program” button. The following window appears.

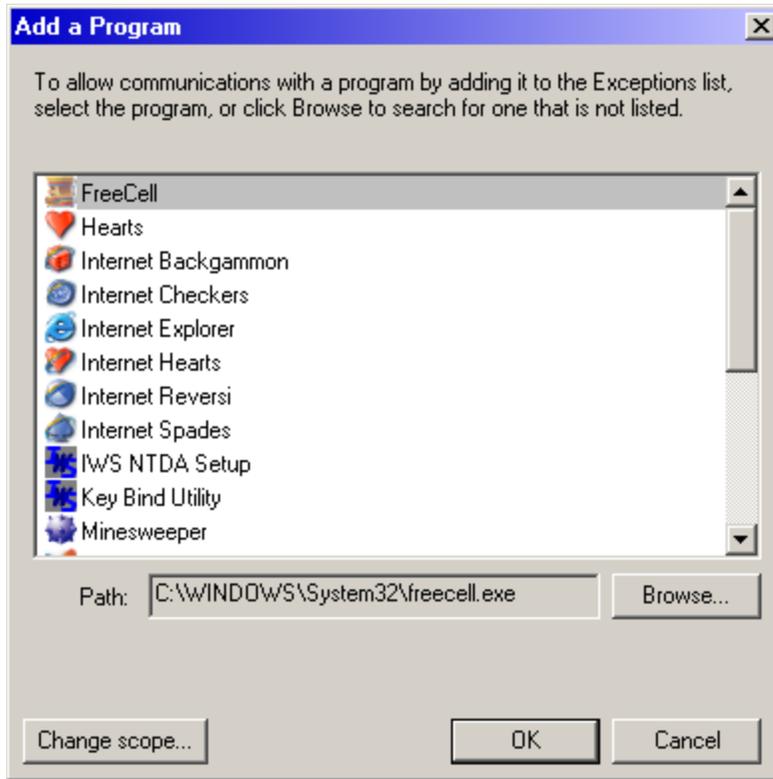


FIGURE 289. Adding programs to the table

The MPXBASE.EXE program is not listed, so we need to find it, so click on the Browse button.

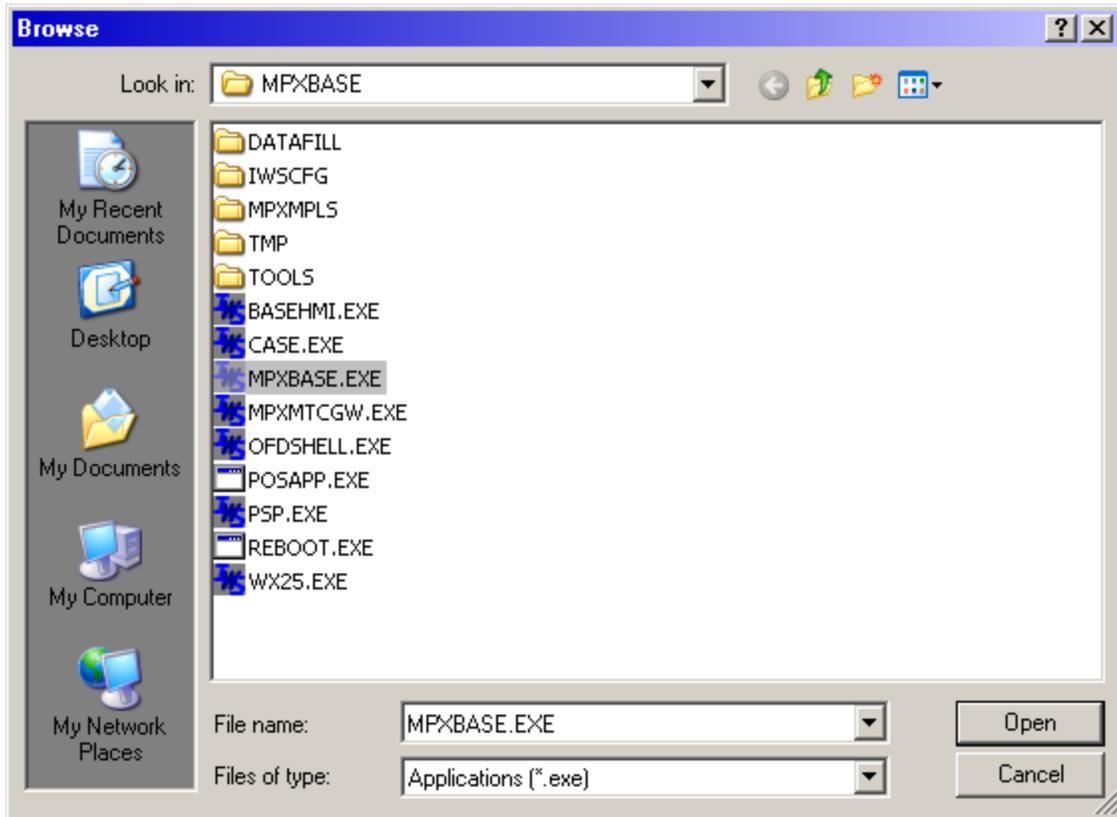


FIGURE 290. Browsing for programs

Use the Browse GUI to get to the C:\MPXBASE folder. First select My Computer, followed by the C:, followed by MPXBASE, then select the MPXBASE.EXE, and lastly click the Open button.

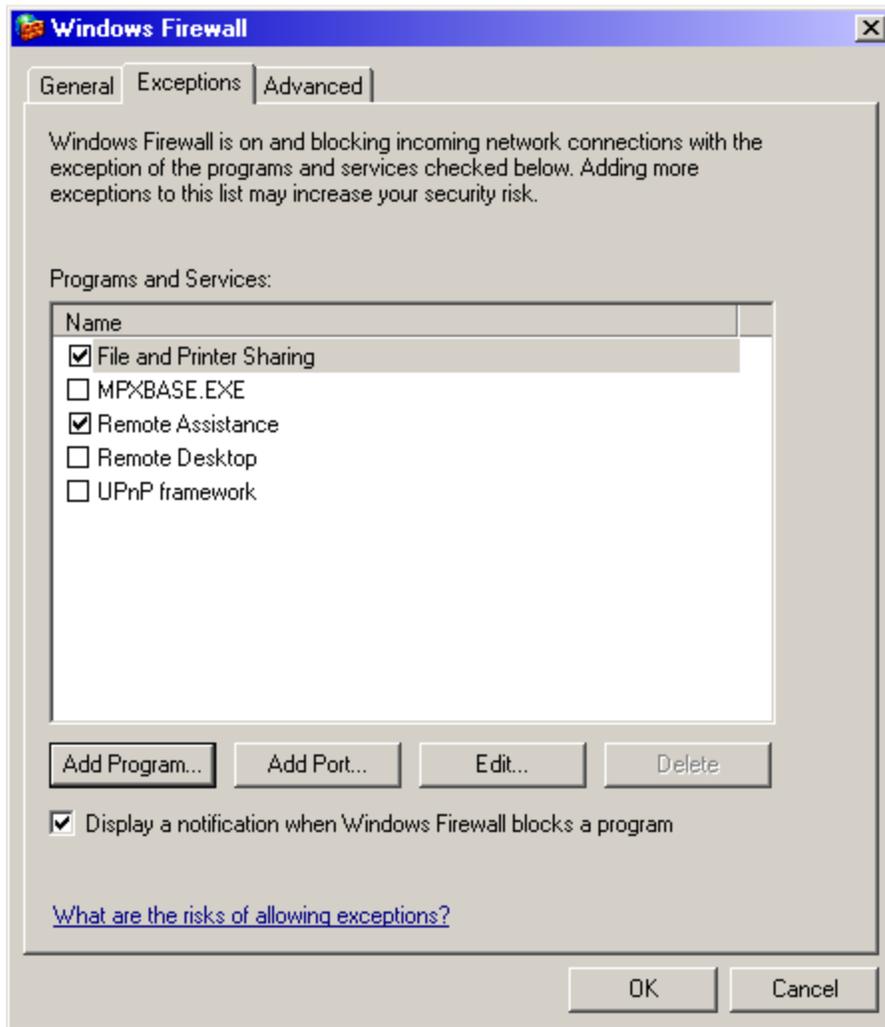


FIGURE 291. Windows firewall window

After the browse window has closed, the Windows Firewall window reappears. Notice now that MPXBASE.EXE is listed as one of the elements in the exceptions list. Make sure to check the box to the left of the name to allow networking access. This sequence of instructions has to be repeated for each application in the previous table that is applicable to your IWS configuration.

In addition to turning the firewall off, some functionality related to ICMP, may need to be turned back on. Please refer to Section 19.4 “Re-enabling ICMP”.

For those interested in using a command line interface to accomplish the entry of a program into the exception list, please read the next section.

19.3.2.1 Command line interface for adding entries into the exception list.

Having to enter any item through a GUI may become tedious and error prone if it has to be done on a large number of positions. Fortunately, Microsoft has provided a command line interface to do just that. With Service Pack 2, the existing program, NETSH.EXE has a new parameter added to support options found in the Windows Firewall window.

The equivalent step to register the MPXBASE.EXE program using netsh.exe would be to open up a command prompt (cmd.exe) from the Windows Run menu and typing:

netsh firewall add allowedprogram program=c:\mpxbase\mpxbase.exe name="IWS Base Application" mode=ENABLE scope=ALL

This will create an entry that will show up in the Exceptions list with the name "IWS Base Application" instead of MPXBASE.EXE that showed up when the GUI entry method was used. This command line entry can be located in a batch file along with similar entries for easy reuse.

Netsh.exe also supports reading in a script file that can do multiple steps instead of just one operation. This provides superior performance over the repeated starting up and stopping netsh.exe that the repeated calls do. Invoke the command "netsh firewall" for more details. Remember that this extension to the netsh.exe program will only be seen on machines that have Windows XP SP2 installed on them.

19.4 Re-enabling ICMP

A frequent method used by attackers of computer systems is to “PING” networks and see which computers respond back. Ping is a well known networking command that is built upon the ICMP protocol. The receiving computer acknowledges that the message was received. Ping is very useful tool for debugging networking problems. However, when used by an intruder, the acknowledgement message tells them that there is a computer hooked up at a given IP address and this gives them a starting point for malicious attacks.

Microsoft has decided that by default, it will turn the ICMP protocol off so that a Windows XP PC will not respond to ping messages. While not specifically required, it may be desirable to turn the ICMP protocol back on to ease potential debugging issues. To do this, click on the Advanced tab of the Windows Firewall window. The following window appears.

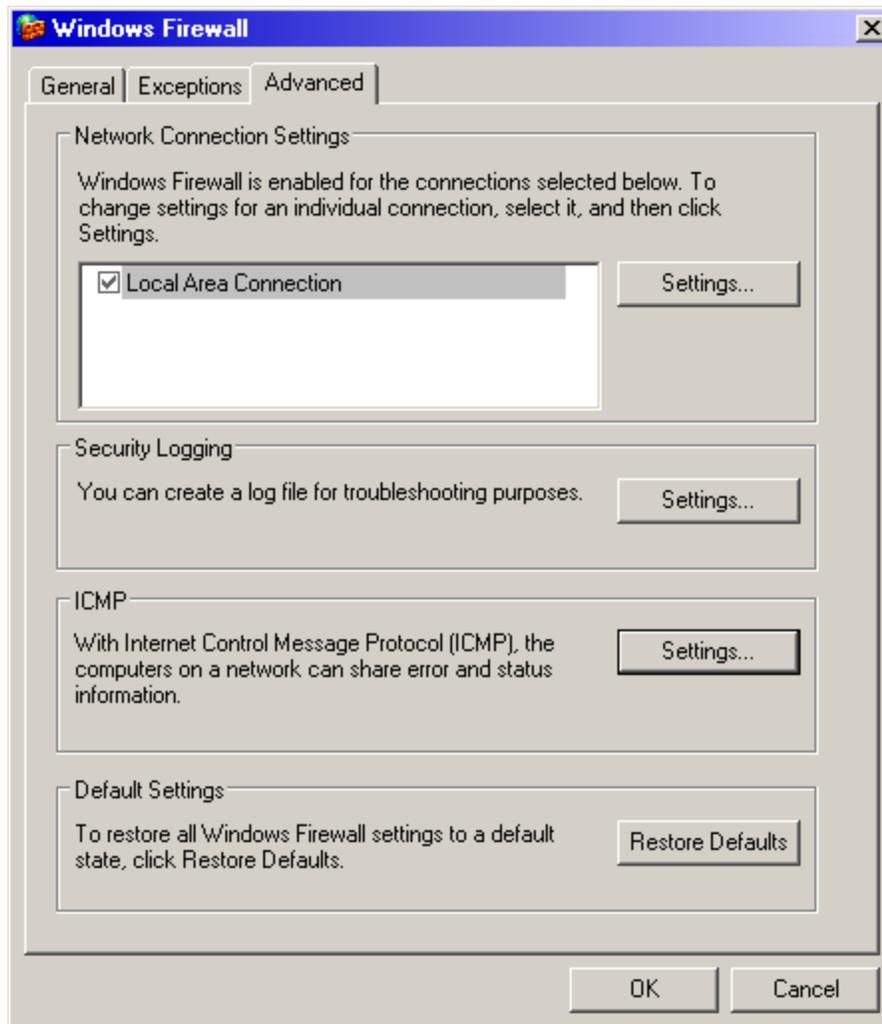


FIGURE 292. Renabling ICMP

From this window, click on the Settings button in the ICMP section. When this is done, the following window appears.

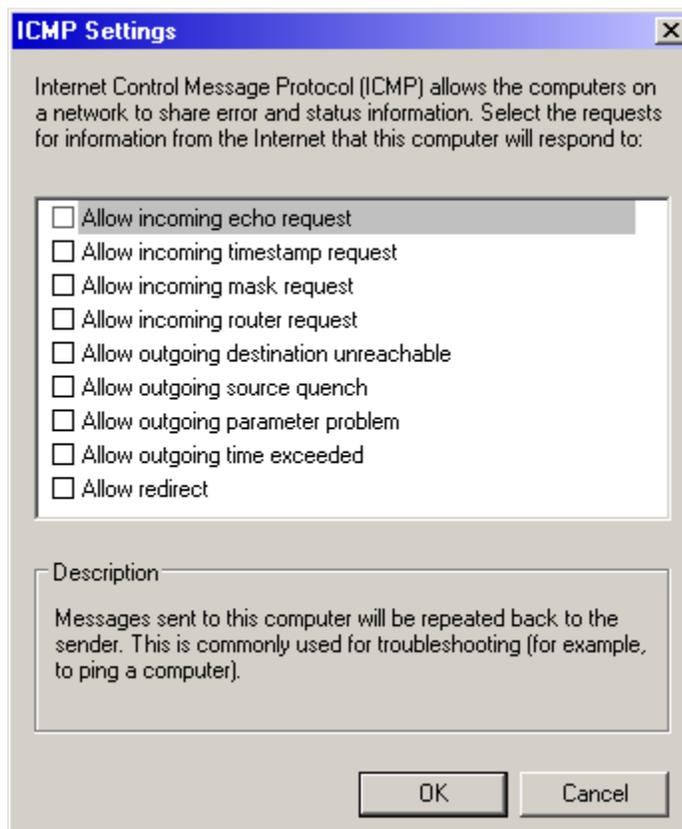


FIGURE 293. Re-enabled ICMP

Make sure to click on every item to turn it back on. When complete, click on the OK button.

19.5 Automatic Updates

Microsoft has rearranged the items in the Control Panel such that the Automatic Updates item is now accessible directly from the Control Panel. Previously, the only way to reach 'Automatic Updates' was to select the System Icon, then the Automatic Updates tab. This method still works as well. In either case, when you select the 'Automatic Updates' item, the following window appears:

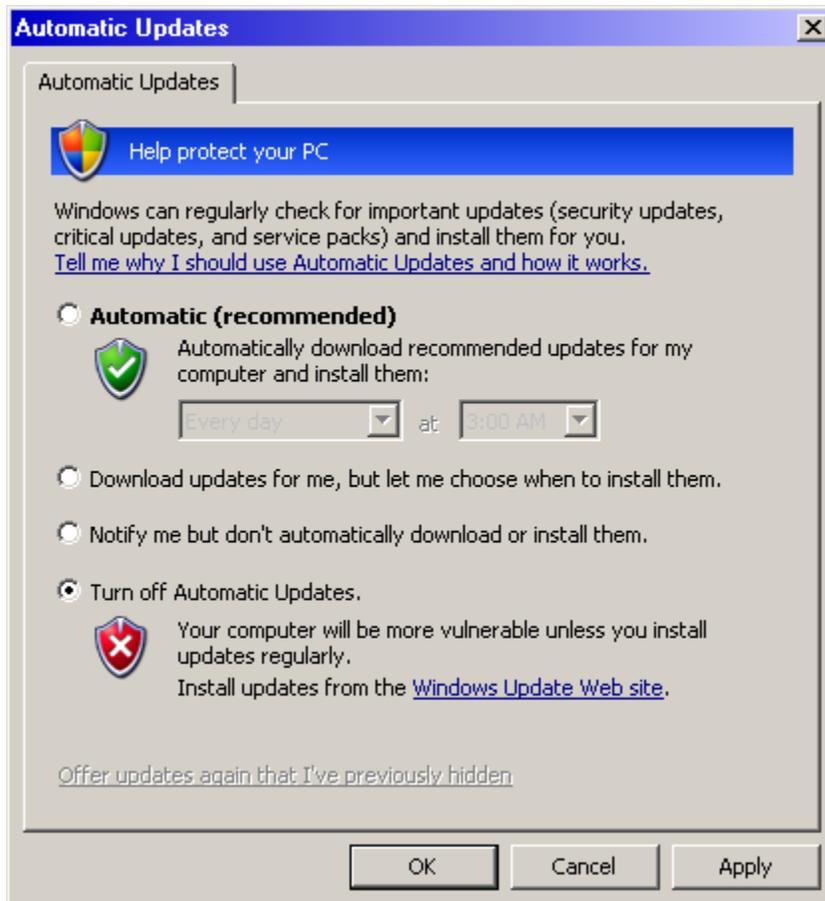


FIGURE 294. Automatic Updates

Select the item that says, "Turn off Automatic Updates", then click the OK button.

20.0 Document References

This document, *TOPS IWS Base Platform User's Guide, 297-2251-010*, describes the capabilities of the TOPS IWS base platform. It contains base hardware and software installation instructions for all applications, base tool usage, and data schema, system engineering, performance, maintenance, and other miscellaneous information. This document is intended for operating company personnel and Nortel Networks personnel who support TOPS IWS operations. In addition to the above information, other related information can be found in the following documentation.

TOPS IWS Base HMI Application Guide, 297-2251-013

The base HMI application provides a common human machine interface (HMI) across all applications for basic position functions, including logging on, statistics, and menus.

This document describes the base HMI. It is intended for methods and training personnel, managers, and system support personnel. It explains how an operator logs on and how the operator positions function, including service assistance and in-charge positions. It also documents the QMSCASE application, which combines the functionality of a traditional service assistant and in-charge manager with that of a general operator. It describes screen displays, keyboard functions, menus, scripting capabilities, and keying sequences. In addition, this document explains the display string datafill required for base HMI displays, and the base datafill configuration required to run the application in the position.

TOPS IWS RAMP and Provisioning User's Guide, 297-2251-015

The remote access maintenance position (RAMP) is used to maintain other IWS positions from a single position. For example, software and datafill files can be transferred from the RAMP to selected operator positions.

This document explains how to distribute software, gather information about other positions, and use the provisioning and associated KeyBind utilities. It is intended for operating company personnel and Nortel Networks personnel who support TOPS IWS operations. A basic knowledge of the TOPS IWS system, the DOS environment, and the Microsoft Windows environment is assumed within this document.

TOPS-IP Users Guide, 297-8403-906

This document describes the details of the TOPS-IP Switch and IP XPM configurations required to support TOPS IP Positions. It provides the user with an overview of the TOPS-IP product, a detailed description of the software, and supplementary information on engineering, datafill, and maintenance activities.

This document is intended for users who are familiar with DMS Traffic Operator Position System (TOPS) processing, Operator Centralization (OC), Intelligent Workstation System (IWS), and basic concepts of IP inter-networking.

IWS Billing Application User Guide, 297-2251-016

Note: As of IWS 13.0, the NTOA/NTOA Plus application was renamed IWS Billing.

This document provides a description of IWS Billing in terms of the HMI it provides to the operator and the various call-related and system functionality employed by the operator. The document explains the display string datafill required for IWS Billing displays, and the base datafill configuration required to run the application on the position. This document is intended for methods and training personnel, managers, and operating company personnel.

TOPS IWS NTDA Application Guide, 297-2251-017

This document describes the HMI and call-related system functionality of the NTDA application. The document explains the display string datafill required for NTDA displays, and the base datafill configuration required to run the application on the position. This document is intended for methods and training personnel, managers, and operating company personnel.

TOPS IWS Network Configuration Guide, 297-2251-201

This document describes the steps necessary to configure the BayStack 150-series Ethernet hubs and for datafilling IWS positions.

TOPS IWS Audio Card Configuration and Diagnostics, 297-2251-202

This document describes the steps necessary to install, configure, and test the Nortel Networks digital audio adapter card for IWS 4.0 release and later. (Release 04 requires a separate disk. In releases later than 04, the IWS base release includes the disk.)

TOPS IWS EISA Client Application Guide, 297-2251-305

This document describes the Enhanced Information Services application (EISA) client as part of TOPS IWS. The EISA client is a browser-based, registering application, residing on the TOPS IWS platform, that can access hypertext markup language (HTML)-based information directly from the internet or an intranet.

TOPS IWS Oracle Forms Developer Client Wrapper Application Guide, 297-2251-307

This document describes the Oracle Forms Developer (OFD) client wrapper application, which is an IWS registering application that wraps the off-the-shelf Oracle Forms and Reports run time client application.

TOPS IWS Base Application Programmer's Interface, NIS Q231-1

The base application programmer's interface (API) consists of a set of common programmer guidelines (the API) and a set of software interfaces to the IWS base. The base API is implemented by the IWS base and is necessary for creating applications that run in an IWS system.

This document describes base API functions in detail. It is intended for application developers. It describes application registration, Windows DDE protocol, and interfaces used to exchange information about system events (such as operator log on, call begin, call end, and position maintenance commands) between the IWS base and the operator positions. It explains application requests to send OPP ActIDs to the DMS switch, to generate system logs, to create debug files, and to access datafill files. It also describes the DMS/gateway simulator API that is provided as part of the base API and that simulates the OPP DID/ActID interface.

TOPS IWS HMI Application Programmer's Interface, NIS Q232-1

The human-machine interface (HMI) application programmer's interface (API) provides software interfaces to applications to allow for a common user interface. It gives operators a common access environment across all applications in the position.

This document describes the HMI API. It explains the message/status area, the keyboard and softkeys, the display library, scripting capabilities, and the windows for the applications, functions, outtrunks, services, and trouble menus. It also describes the functional interfaces that allow access to these common windows.

TOPS IWS Software Development Kit Tools User's Guide, NIS Q237-1

The software development kit (SDK) is a software package used by application developers and operating company personnel to add third-party software to the IWS position. The SDK contains C code header files, libraries, and sample application code. It also provides the graphical user interface for DMS emulation (GUIDE) and the application manager. The GUIDE simulates interaction between the DMS switch and the IWS base application. The application manager is a GUI used to integrate commercial applications onto an operator position.

This document explains the operation and use of the SDK in detail. It also presents the application sample code provided on the IWS SDK diskette. This includes code for the DDE client, screen saver, BNRDA, and yellow pages applications. It is intended for applications developers.

Open Position Protocol

This document provides the functional description and interface specification for the interworking between the DMS switch and a position supporting a human operator. This is a licensed document which may be obtained through Nortel Networks.

21.0 Revisions

The following is a history of TOPS IWS changes from the initial IWS 1.0 release to the current release. These changes are listed in reverse order so that changes most pertinent to the current release are presented first. If a position has been upgraded from IWS release 12 to 15 for example, be sure to check sections 21.7, 21.6, and 21.5 and for all changes that apply to the position.

21.1 Revisions to the Post-GA Release 17.1

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - MPXINI.INI
 - **Deleted files:**
 - none
- **Added new *Appendix G: Windows XP Professional - Service Pack 2*. This appendix details the changes in Service Pack 2 that impact the IWS, and how to establish the proper security levels. A mandatory patch, P17113, is also required for all IP Positions running under Service Pack 2.**
- **The installation instructions were updated, including the Install Requirements, BIOS settings, and Installing Windows XP Professional sections, and the Windows XP Professional Post-Installation Instructions.**
- **Included a diagram of the IBM 101 keyboard and displayed the scan codes in Figure 116, “IWS Keyboard Key Scan Codes,” on page 235.**
- **Enhanced the installation procedures for keyboard filter, the ISA Audio Card, and the gateway drivers.**
- **Removed references to specific router hardware.** Customers who purchase their hardware from sources other than Nortel will not have these specific types of hardware.
- **Updated references to Plantronics headsets. New model is the DA60. The required firmware version is now USB 0102 DSP 0106.**
- **New Dell GX270 PC replaced the Dell GX260.**
- **HP Compaq DC5000 is also compatible as a base unit for IWS 17.1 IP (only).**
- **Added a procedure for determining the actual hard drive size in Section 1.4.2.1 on page 28.**

-
- **Added a procedure: “Converting a Position from Ethernet TDM to Ethernet Voice Over IP Positions” on page 99.**

21.2 Revisions from Release 17.0 to Release 17.1

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - SCRPTINI.INI
 - MPXINI.INI
 - MPXNET.INI
 - NTDAINI.INI
 - HOSTS.TBL
 - PDCALLD.LNG
 - **Deleted files:**
 - none
- **The default values in file NTDAMSA.LNG have been changed.** No user intervention is required.
- **Information on IWS IP Positions has been added throughout the guide.** An IP Position is an IWS operating in an IP (internet protocol) configuration. The IWS configuration that existed prior to IWS Release 17.1 and continues to be supported is now referred to as the TDM configuration. The associated IWS positions is referred to as a TDM positions. The TDM configuration supports both Token Ring and Ethernet, while the IP supports Ethernet only.

The IP Position configuration requires a different DMS TOPS peripheral, the IP XPM, that replaces the TMS (TOPS Message Switch). The TDM Configuration concept of DMS Gateways no longer applies, and messaging between IWS positions and the DMS no longer go over X.25 links. The DMS Switch now has IP interfaces for messaging with the IWS position. Refer to the *TOPS-IP Users Guide*, 297-8403-906 for details on the TOPS-IP Switch and IP XPM configurations required to support IWS IP Positions.

- **Two new IWS fonts were added.** They are called Bold10FixedFont and Light10FixedFont.
- **New Color Sets.** The user selects one of the available color sets within the Windows XP Professional theme. 14 color schemes are now available instead of the original seven by using the shift versions of the softkeys. All previous color set selections from pre-IWS 17.1 releases are not transferable. If the craftsperson previously altered the default Nortel Networks color schemes, those alterations must be reset again by modifying the IWS 17.1 theme files as directed in section 5.3.1.

- **New Appendix E: Plantronics headset.** The DA50Plantronics DA50 Audio device/headset is required for IP positions. The Persono Pro software must be installed on the position prior to using the headset. This appendix contains the installation procedures.
- **BIOS Version required for Intel PCs NTN51WB (Intel 600 MHz) and NTN51UB (Intel 350 MHz) were removed.** Since these PCs are MD'd, no additional versions of the BIOS can be shipped.
- **Windows XP Professional installation instructions were updated to further document activating the software by telephone.** See Section 2.1.5 on page 64.
- **IWS supports receiving a foreign requested directory number from the TOPS switch. Previously IWS could accept only domestic requested numbers.**

21.3 Revisions from Release 15.2 to Release 17.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.

— **New files:**

Short Messaging Service: (Base HMI)

MSGEDIT.INI
 ME.LNG
 MESFY.LNG
 XMEMSG.TBL
 XMESMSDM.TBL
 XMEEMLDM.TBL
 XMEDSPID.TBL
 XMEEMLNM.TBL
 XMEDTG.TBL
 XMETR.B.TBL
 XKBOARD.TBL
 NTDAINI.INI

Enhanced Dynamic Scripting:

XSCRULES.TBL
 XSCRULES.XLT
 SCRIPTSCR.XLT

— **Altered files:**

MPXINI.INI (IWS Base)
 SCRIPTINI.IN I(IWS Base)
 AACTWSFK.LNG
 NTDAMISC.LNG
 OIAMSA.LNG
 SCRIPTSCR.SCR

-
- **Deleted files:**
 - none
 - **New chapters:**
 - **Appendix A: Windows XP Professional Configuration**

Once the Windows XP Professional operating system has been installed, certain system settings must be changed in order for the IWS software to work seamlessly. This new appendix contains configuration instructions including: Automatic login as Administrator, setting the TaskBar and Start Menu, Daylight Savings Time, Password Expiration, and Display Properties including Windows XP Professional Themes.
 - **Appendix B:** Driver installation instructions in new Appendix B. New driver installations for the DMS Gateway cards including the ARTIC and Quadron drivers.
 - **Appendix C:** Driver installation instructions in new Appendix C. New driver installations for the IWS audio cards.
 - **Appendix D:** Driver installation instructions in new Appendix D. New driver installations for the IWS Keyboard.
 - **Appendix E:** PCI Audio card flash loader in new Appendix D. Updating instruction for the PCI audio card (NTNX52CC) flash loader which must be updated prior to installing Windows XP Professional.
 - **Chapter 1 Introduction.** There are new hardware requirements for IWS 17.0 since Windows 95 has been MD'd and old chipsets will not support Windows XP Professional. Other hardware requirements include an internal CD-ROM, increased minimum RAM, and a mouse.
 - **Chapter 2 Operating System Installation.** Created Windows XP Professional installation instructions and replaced those for Windows 95.
 - **Chapter 3 IWS installation.** Updated the installation instructions for IWS 17.0.
 - **Patching IWS software:** The process of patching IWS software has changed with the Windows XP operating system. Installation instructions are provided in section “Preparing the IWS position for patching” on page 127.
 - **IWS Website:** The process for accessing patches, drivers, and documentation is updated due to changes to the customer website. See the appropriate section for instructions on how to access the required information.
 - **Enabling the Alt+Tab Command:** There is a new procedure in “Enabling the Alt+Tab Command” on page 154.
 - **Changing the IP Address of an IWS Position:** The process for changing the IP address were revised due to updates to the operating system. These changes are denoted in “Changing the Network Settings of an IWS Position” on page 101.

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- **Hardware no longer supported:** As of IWS 17.1, this hardware is no longer supported:
 - Olicom OC-3118 or OC-3117 Token-Ring Adapter Card
Model # 770000591 (CPC A0619543)
 - **Enhanced Information Services Application Client (EISA) is now installed with the other IWS applications.** It no longer requires a separate installation.
 - **Windows XP Professional comes with Internet Explorer installed.** It is not necessary to install it separately as was required in IWS 13.0 and 15.2.
 - **When enhanced scripting is enabled, the old scripting table files are loaded but not used.** These datafill files are XSPIDXSC.TBL, XCORGXSC.TBL, XCT4QXSC.TBL, XRCXSC.TBL, NTDASPID.TBL, NTDACORG.TBL, and NTDACT4Q.TBL.
 - **The NTDA provisioning tool, NTDASETP.EXE, has been updated to support new parameter NTDAINI.INI used for the Short Messaging Services feature.**
 - **Three scan codes were changed as follows:**
 - Scan code 119 was changed to 91.
 - Scan code 120 was changed to 92.
 - Scan code 121 was changed to 93.

Note: When converting from Windows 95 to Windows XP Professional, these three keys must be remapped using KeyBind. Refer to Section 6.4.15 on page 234 for more information.

21.4 Revisions from Release 15.0 to Release 15.2

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - MPXINI.INI (IWS base)
 - SCRIPT.INI (IWS base)
 - **Deleted files:**
 - none
- **CD installation of IWS:** It is possible to install IWS 15.2 from the IWS CD, which is a simpler installation process than with disks. Installation instructions are provided in section 3.0, “IWS 17.1 Software.”
- **Provisioning tool:** A parameter was changed in SCRIPTINI.INI, which resulted in a change to the SCRIPTINI.INI provisioning tool for NTOA (IWS Billing Application). The old option “Script Visible During Call” was

removed, and a new option “Give Scripting Window Focus at Call Presentation,” was added. See *TOPS IWS RAMP and Provisioning Guide*, 297-2251-010.

21.5 Revisions from Release 14.0 to Release 15.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - MPXINI.INI (IWS base)
 - MPXNET.INI (IWS base)
 - XFNCTS.TBL (IWS base)
 - PANOACT.LNG (IWS base)
 - **Deleted files:**
 - none
- **Installation:** The following installation changes were made with IWS 15.0.
 - **Integrating third-party applications:** When an IWS position is upgraded from a pre-IWS 13.0 load, it is necessary to recompile all IWS API applications with a 32-bit compiler. Install the IWS 15.0 API/SDK and use the APPDEF tool to redefine third-party applications so that the applications can be used with IWS 15.0 and later IWS releases. Refer to the *TOPS IWS Software Development Kit Tools User's Guide*, NIS Q237-1. Also, see the Nortel Networks customer website at www.nortelnetworks.com.
 - **New token-ring card:** The current IWS token-ring card is a PnP PCI Madge 51-50 card. As of IWS 15.0, it is included with and can only be used with the NTN51WB (Intel 600 MHz) and NTN51UB (Intel 350 MHz) PCs.
 - **Audible alert:** A new option that allows a tone notification to be sent from an on-board wave device to external speakers was added to the current audible alarm function of an IWS position. This does not apply to an NTN51VB (Intel 166 MHz) PC.

21.6 Revisions from Release 13.0 to Release 14.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - CT4QMENU.LNG (Base HMI)
 - XCT4QMNU.TBL (IWS base)
 - **Altered files:**
 - none
 - **Deleted files:**
 - none
- **Installation:** The following installation changes were made with IWS 14.0.
 - **IWS platforms:** As of IWS 14.0, the use of an HP XM4 as an IWS position is **not supported**. See section 1.0 of this document.
 - **IWS base software:** Prior to IWS release 14.0, there were two categories for IWS Base called IWS Base Standard and IWS Base Extended. There is now only the category IWS Base. The IWS Base 14.0 still consists of three disks (Disks 1, 2, and 3). See section 1.0 and 3.0 of this document.
 - **IWS installation displays:** The display windows were modified to reflect IWS 14.0 software considerations. See section 3.0 of this document.
 - **Windows upgrade option:** The option for upgrading Windows 3.1 to Windows 95 is removed for IWS 14.0 and above. Only an initial installation of Windows 95 is supported. See section 2.1 for an initial installation of Windows 95. Also, see section 2.2 for special upgrade considerations.
 - **Integrating third-party applications:** When an IWS position is upgraded from a pre-IWS 13.0 load, it is necessary to recompile all IWS API applications with a 32-bit compiler. Install the IWS 14.0 API/SDK and use the APPDEF tool to redefine third-party applications so that the applications can be used with IWS 14.0 and later IWS releases. Refer to the *TOPS IWS Software Development Kit Tools User's Guide*, NIS Q237-1. Also, see the Nortel Networks customer website at www.nortelnetworks.com.
- **Datafill changes:** Datafill files CT4QMENU.LNG and XCT4QMNU.TBL were added. These new LNG and TBL files are used with the existing XCT4Q.TBL file for CT4Q menu operations. Refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013. Also, see section 4.0 of this document.

21.7 Revisions from Release 12.0 to Release 13.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - none
 - **Deleted files:**
 - none
- **Installation:**
 - **IWS platforms:** The following platform changes were made in IWS 13.0.
 - **Intel 600 MHz:** The initial-install (OEM) version of Windows 95 provided by Nortel Networks was modified to support a new Intel 600 MHz type PC. Refer to section 1.3 of this document.
 - **HP XM2:** The upgrade version of Windows 95 provided by Nortel Networks was modified to **remove support** for the HP XM2 type PC, which is manufacture discontinued. Refer to section 1.3 of this document.
 - **HP XM4:** As of IWS 13.0, the XM4 needs a memory upgrade to remain compatible with software releases IWS 13.0 and above. The original 8 MB of RAM on the XM4 must be upgraded to at least 64 MB of RAM. Also, as of IWS 13.0, the use of an HP XM4 as a DMS gateway position is **not supported**. See section 1.0 of this document.
 - **IWS installation displays:** The display windows were modified to reflect IWS 13.0 software considerations.
 - **IWS base software:** Three disks (instead of two disks) are now needed to install the IWS base software. There are still separate disks for the OIA, NTDA, and IWS Billing (previously NTOA) applications.
 - **Integrating third-party applications:** When an IWS position is upgraded from a pre-IWS 13.0 load, it is necessary to recompile all IWS API applications with a 32-bit compiler. Install the IWS 13.0 API/SDK and use the APPDEF tool to redefine third-party applications so that the applications can be used with IWS 13.0 and later IWS releases. Refer to the *TOPS IWS Software Development Kit Tools User's Guide*, NIS Q237-1. Also, see the Nortel Networks customer website at www.nortelnetworks.com.
 - **IWS Billing (previously NTOA) option:** A new option for the IWS Billing application now appears in the IWS installation procedure in place of the renamed NTOA application option.
 - **New datafill preserve option:** Files affected by the preserve option now include files with extension INI, as well as files with extension TBL or LNG, and the AUTOEXEC.BAT, CONFIG.SYS, and HOSTS files. Exactly which

files and how they are changed depend on options selected during an upgrade. Refer to section 3.0 of this document.

- **IWS color sets:** IWS color sets and the IWS color information in the Windows registry are now handled differently during an install. Refer to section 3.5 of this document.
- **IWS fonts:** IWS font MPXFixedFont was renamed IWSWinLatin1Fixed, and MPXFixedFont was renamed IWSWinLatin2Fixed. Also, six additional custom IWS international fonts were added. Refer to section 3.6 of this document.
- **Character translate parameter:** The Character Translator section of file MPXPARM.INI is no longer used unless the TOPS software load in the DMS switch is earlier than TOPS13. For earlier TOPS software loads, the CharTranslate parameter still determines whether characters above 127 should be encoded for translation.
- **IWS generic key actions added:** The following three key actions have been added to the IWS generic key set.
 - Key action 43, Return: performs the normal Windows “return” key functionality.
 - Key action 44, Do Nothing: causes the key to which it is mapped to do nothing.
 - Key action 163, No IWS function: performs the normal physical key functionality that is applicable, and does not perform any IWS functionality. For example, if you place this key action on the “h” key, you will see just an “h” character if you press that key when the cursor is in an edit field.
- **IWS function added:** Function 79, Clear Trigger Profile, was added to the functions menu.
- **NTOA application:**
 - **Application name change:** The NTOA application (NTOA and NTOA Plus application versions) are now renamed the IWS Billing application. Refer to the *TOPS IWS Billing Application User’s Guide*, 297-2251-016.
 - **CCDB Timer name change:** The CCDB Timer control button is now called the DB Timer control button. Refer to the NTOAINI provisioning section of the *TOPS IWS RAMP and Provisioning User’s Guide*, 297-2251-015.
- **Base HMI application:** Operator headset volume adjustments are now treated differently so that service providers can accommodate varying noise conditions in operator service centers. Refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013.

21.8 Revisions from Release 11.0 to Release 12.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - CASEAPP.LNG (Base HMI)
 - CASESFKY.LNG (Base HMI)
 - POSMSA.LNG (Base HMI)
 - XCLLORIG.TBL (IWS base)
 - **Deleted files:**
 - none
- **Installation:**
 - Installation displays were updated for IWS 12.0 software.
- **Base HMI application:**
 - **Call alerting:** Datafill files CASEAPP.LNG, CASESFKY.LNG, POSMSA.LNG, and XCLLORIG.TBL were modified as follows:
 - Two string IDs (“QCA” for QCA alarm condition and also for query results) were added to CASEAPP.LNG. New softkey ID (“Qry QCA”) was added to CASESFKY.LNG. And a new string ID (“CA”) for the calls-alerting display was added to POSMSA.LNG. Refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013.
 - Two call origination types (“IN Intwrk” and “Spl LRN”) were added to XCLLORIG.TBL. Refer to the IWS Base Datafill Tables section of this document.
- **NTOA application:**
 - **Operator maximum handoff icon:** The “No Handoff” icon originally displayed for AABS calls now also appears for Billing and Access Services calls when no subsequent handoffs are allowed to an automated system. Refer to the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016.

21.9 Revisions from Release 10.0 to Release 11.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - XKEYMAC.TBL (IWS base)
 - **Altered files:**
 - MPXINI.INI (IWS base)
 - MPXPARAM.INI (IWS base)
 - SYSTEM.INI (IWS base)
 - XFNCTS.TBL (IWS base)
 - XTGDSPL.TBL (IWS base)
 - **Deleted files:**
 - SCRSINI.INI (IWS base)
- **Installation:**
 - **Microchannel type PCs:** Microchannel type PCs are no longer supported by IWS base and application software.
 - **Windows 95:** IWS base and application software is no longer compatible with Windows 3.1. A message box is displayed to request an upgrade to Windows 95 when an attempt is made to load IWS 11.0 software onto the Windows 3.1 operating system.
 - **Position configuration disk:** This disk is no longer used with IWS base software.
 - **PCI flash ROM loader disk:** The PCI flash loader disk is no longer required. The necessary PCI driver software is now included with the IWS base software.
 - **X.25 ARTIC driver software:** This driver software is replaced with Windows 95 driver software.
 - **SYSTEM.INI file:** This file automatically loads the audio card driver and the electrical interface (V.35 or RS-422) driver. The SYSTEM.INI file no longer loads network card drivers. The network card drivers for token ring or Ethernet are now started by Windows 95.
 - **Pathway software:** Attachmate (formally Wollongong) Pathway software is no longer a part of the IWS base software installation and setup.
 - **NTDA installation:** The loading of NTDA application software is now a part of the IWS base and applications software installation.

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- **RAMP- only option:** IWS software installation now has a RAMP-only option. With this option, only software required for off-ring RAMP operations such as monitoring of IWS positions and software distribution are loaded onto this position. This allows for the installation of RAMP software on a non-IWS, stand-alone, non-dedicated PC loaded with Windows 95 dial-up networking software.
 - **Commercial software patches:** The elimination of Pathway software removed the need for commercial software patching to be a part of the IWS base software installation and setup.
 - **Keyboard driver:** Windows 95 supplies a new virtual keyboard driver that assigns three new key scan codes. If an IWS position is upgraded to IWS release 11.0 but the datafill file XKBOARD.TBL of the earlier release is preserved, you must use KeyBind to reassign key actions to the affected keys. Refer to “Table XKBOARD” and the *TOPS IWS RAMP and Provisioning User’s Guide*, 297-2251-015.
 - **IWS base application:**
 - **DMS gateway application:** The executable file for a DMS gateway position was changed from MPX25.PIF to WX25.EXE.
 - **IWS fonts:**
 - Four new NTDA fonts Bold8FixedFont, Light8FixedFont, ShortBold8FixedFont, and ShortLight8FixedFont were added to the existing IWS set of fonts MPXFixedFont and MPXIntlFixedFont.
 - The Euro currency symbol was added to the IWS font set as part of the datafill in the MPXPARM.INI file.
 - **IWS colors:** IWS color sets are no longer stored in the CONTROL.INI file, and this file is no longer modified when IWS software is installed. IWS color sets are now stored in the Windows Registry.
 - **IWS screen saver:** The previous IWS custom screen saver is replaced with Windows-compliant screen savers. This change removes the need for file SCRSINI.INI to exist and removes the need to list “scrsav” as a non-registering application in file MPXINI.INI. The default screen saver is a scrolling marquee. Refer to Windows 95 documentation to select and configure a screen saver.
 - **IWS registry database:** The REGREST.BAT file can be used to restore default IWS registry settings.
 - **IWS key macros:** This feature adds a new file, XKEYMAC.TBL. This file is modified through use of the KeyBind tool. Refer to the *TOPS IWS RAMP and Provisioning User’s Guide*, 297-2251-015.

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- **Mouse control:** The use of a mouse to manipulate window and field displays is now controlled by a single setting in the AUTOEXEC.BAT file. The default value is set to prevent the use of a mouse. If the use of a mouse is needed, with RAMP operations for example, this mouse protection can be changed as follows:

In the AUTOEXEC.BAT file, change the variable MOUSEON from MOUSEON=0 to MOUSEON=1.
 - **NTDA application:**
 - **Elimination of FT router:** The use of an FT router to access a DAS is no longer supported. The NTDA setup tool can no longer be used to provision an FT router (NTDA gateway). Refer to the *TOPS IWS NTDA Application Guide*, 297-2251-017.
 - **Custom fonts:** Four new NTDA custom fonts were added to the IWS custom font set. Refer to the *TOPS IWS NTDA Application Guide*, 297-2251-017.
 - **NTOA application:**
 - **No automation:** An operating company can indicate that calls from a specific subscriber line do not arrive at an automated service (that all such calls go directly to an operator) and cannot be released to any automated service. If the subscriber requests that an individual call be released to an automated service, the operator can use the new Allow Automation function to release that call to an automated service. This OLNS feature modifies the XFNCTS.TBL file. Refer to the IWS Base Datafill Tables section of this document. Also, refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013.
 - **Trunk group displays:** The range of field Trunk Group in XTGDSPL.TBL is now 1 through 254, and the range of field Trunk Group Disp is now up to 8 characters.
 - **RAMP application:**
 - **RAMP-only:** This feature provides for a non-IWS position that operates only as a RAMP. Refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015.
 - **FT router:** The IWS provisioning tool is no longer used to assign an FT router (NTDA gateway) as a non-registering application in the MPXINI.INI file. Refer to the *TOPS IWS RAMP and Provisioning User's Guide*, 297-2251-015.

21.10 Revisions from Release 9.0 to Release 10.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - NTOAINI.INI (NTOA)
 - PCCCINFO.LNG (NTOA)
 - PROVLANG.INI (IWS base)
 - PROVTBL.INI (IWS base)
 - OIACIW.LNG (OIA)
 - SCRPTINI.INI (IWS base)
 - **Deleted files:**
 - OACALLD.LNG (IWSOA)
 - OACINFO.LNG (IWSOA)
 - XOAOPRSK.TBL (IWSOA)
- **Installation and provisioning:**
 - **Removal of IWSOA:** The IWSOA application is manufacture discontinued (MD). The IWSOA application is no longer a part of the installation procedures for IWS base and other application software and associated disks. As a result, the MPXOA default path was replaced with path IWSNTOA. The [IWSOA] section in file SCRPTINI.INI and files OACALLD.LNG, OACINFO.LNG, and XOAOPRSK.TBL were removed. References in PROVLANG.INI for provisioning OACALLD.LNG and OACINFO.LNG were removed. Also, references in PROVTBL.INI for provisioning XOAOPRSK.TBL were removed.

Note: Obsoleted datafill files are listed in two files called OBSTBL.TXT and NTDAOBS.TXT in directory C:\MPXBASE\TMP. All files listed in these TXT files have a new OBS extension (for example, deleted IWSOA files OACALLD.LNG, OACINFO.LNG, and XOAOPRSK.LNG can be found as renamed files OACALLD.OBS, OACINFO.OBS, and XOAOPRSK.OBS in OBSTBL.TXT.
 - **Base tools:** The base tool Procomm Plus is no longer supported by the IWS base platform. The Microsoft Windows Terminal program is available for basic file transfer operations.

- **NTOA application:**
 - **Special field editing:** Parameters were added to file NTOAINI.INI for the NTOA Special Field Editing feature. See the *TOPS IWS Base HMI Application Guide*, 297-2251-013, and the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015. Also, refer to the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016.
 - **Enhanced calling card:** Parameters were added to file PCCCINFO.LNG for the NTOA Enhanced Calling Card (ECC) feature. See the *TOPS IWS Base HMI Application Guide*, 297-2251-013, and the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015. Also, refer to the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016.
- **OIA HMI:**
 - **IWSOIA umbrella:** Parameters were added to file OIACIW.LNG for the IWSOIA Umbrella feature. See the *TOPS IWS Base HMI Application Guide*, 297-2251-013, and the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015. Also, refer to the *TOPS IWS OIA Application Guide*, 297-2251-012.
- **RAMP application:**
 - **Configuration sets:** Software distribution configurations can now be included in configuration sets. Refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015.
 - **Schedule manager:** Software distribution tasks can now be scheduled to be executed at a designated time. Refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015.

21.11 Revisions from Release 8.0 to Release 9.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - XCOTHSD.TBL (IWS base)
 - XSPIDXSC.TBL (IWS base)
 - NTDACORG.TBL (NTDA)
 - NTDACT4Q.TBL (NTDA)
 - NTDAMISC.LNG (NTDA)
 - NTDASPID.TBL (NTDA)

— **Altered files:**

POSPRFLG.LNG (IWS base)
POSPRFSK.LNG (IWS base)
XTROUBLE.TBL (IWS base)
DATABASE.LNG (NTOA)
NTOAINI.INI (NTOA)
PCCCINFO.LNG (NTOA)
XDBERROR.TBL (NTOA)
NTDAINI.INI (NTDA)
MPXPARM.INI (IWS base, NTOA, and NTDA)
SCRPTINI.INI (IWS base, NTOA, and NTDA)

— **Deleted files:**

CORGNTDA.TBL (NTDA)
CT4QNTDA.TBL (NTDA)

- **Installation and provisioning changes:** A new IWS position configuration setup tool (disk) was provided and the procedures for installing Attachmate PathWay runtime and access software for DOS and Windows were changed to support user-installed Ethernet configurations for ISA-type hardware platforms (Intel 350 MHz and 166 MHz type PCs, and HP XM4 and XM2 type PCs). Refer to section 2.0 “Initial Software Installation and Configuration” to initially configure and install base software on an IWS position. Refer to section 3.0 “Reconfiguration or Upgrade of an IWS position” when reconfiguring or upgrading the IWS base software on an IWS position.
- **IWS patching changes:** The IWS patch process is now handled separately from the IWS base and application software releases. Each IWS patch disk will be provided with appropriate installation documentation. Patches can be applied from a RAMP by use of the software distribution tool. Patch information for an IWS position is available by use of a new softkey, and an applied patch can be removed if necessary. Files POSPRFLG.LNG and PROSPRSK.LNG were modified to support this new patch process. Refer to the TOPS IWS patching document provided with each IWS patch disk for complete installation information. Information on applied IWS patches can be viewed at an IWS position and at the RAMP. See the *TOPS IWS Base HMI Application Guide, 297-2251-013*, and the *TOPS IWS RAMP and Provisioning Guide, 297-2251-015*.

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- **Clock and call timer display changes:** There are two new information displays (call timer and clock displays) in the time field of the message/status area (MSA) of an IWS operator position (refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013, and to the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016, for details on the time field of the MSA). The call timer display shows how long it took to process a call. The clock display is a local-time display. The [Clock] section of the MPXPARM.INI file controls these displays (refer to section 5.6.4.8, “Clock/Call Timer Display,” and see section 5.6.4.10, “MPXPARM.INI Example”). Thresholds for each call type of the call timer display are cross referenced in new file XCOTHSD.TBL (refer to section 5.5.8, “Table XCOTHSD”). Refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015 to edit the variables in files MPXPARM.INI and XCOTHSD.TBL.
 - **Save and print screen capability:** A call screen display can now be captured in a file for later printing (refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013). A screen capture can be made in two ways: by using an assigned operator keystroke (refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015), or as an option to a trouble code (refer to the *TOPS IWS Base HMI Application Guide*, 297-2251-013). File XTROUBLE.TBL has a new field called ScreenCapture, and the IWS Generic key set includes a new key for screen captures. The RAMP can be used to print captured screen displays (refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015).
 - **Scripting changes:** Scripting hierarchies can now be set by the user to control the scripting window for NTDA and NTOA applications (refer to the *TOPS IWS NTDA Application Guide*, 297-2251-017 and to the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016). The Service Provider (SPID) is now a control attribute. In addition, the scripting window can be set to remain visible during call processing in the NTOA application. Also, the location of the NTOA scripting window was changed. Two new cross-reference table files, NTDASPID.TBL and XSPIDXSC.TBL, are used to map ScriptIDs to SPIDs. Existing cross-reference files CORGNTDA.TBL and CT4QNTDA.TBL were renamed NTDACORG.TBL and NTDACT4Q.TBL (refer to section 5.5, “IWS Base Datafill Tables”). Five variables, RCPriority, SPIDPriority, CT4QPRIORITY, COPriority, and VisibleDuringCall, were added to the [NTOA] section of file SCRPTINI.INI, and three variables, SPIDPriority, CT4QPRIORITY, and COPriority were added to the [NTDA] section of file SCRPTINI.INI (refer to section 5.6, “Initialization Files (INI files”).

- **Display of SPID and trunk group information changes:** Both SPID and trunk group information can now be displayed at the same time on an operator position for the NTOA application (see the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016). For the NTDA application, only one, the SPID information or trunk group information, can be displayed (see the *TOPS IWS NTDA Application Guide*, 297-2251-016). New variables, DisplayBoth and Priority, were added to the [TrunkGroupSPID] section of file MPXPARM.INI to control the display (see section 5.6 “Initialization Files (INI files)”).
- **NTOA changes:** The datafill in files DATABASE.LNG, NTOAINI.INI, PCCCINFO.LNG, and XDBERROR.TBL was changed for EBAS 1.03. Refer to the *TOPS IWS NTOA/NTOA Plus Application Guide*, 297-2251-016 for information on EBAS 1.03. Also, refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015 to edit datafill.
- **NTDA changes:** New file NTDAMISC.LNG was added and the datafill in file NTDAINI.INI was changed for D1 parity, open numbering plan, ISO Latin 1, and year 2000 features. Refer to the *TOPS IWS NTDA Application Guide*, 297-2251-017 for information on these features. Also, refer to the *TOPS IWS RAMP and Provisioning Guide*, 297-2251-015 to edit datafill.

21.12 Revisions from Release 7.0 to Release 8.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - XINFBRSN.TBL (NTOA)
 - XINFBSVC.TBL (NTOA)
 - NTDAINI.INI (NTDA)
 - NTDAMSA.LNG (NTDA)
 - **Altered files:**
 - DATABASE.LNG (NTOA)
 - XDBERROR.TBL (NTOA)
 - **Deleted files:**
 - MPX.INI (NTDA)
 - MPXNTDA.INI (NTDA)
 - MSA.LNG (NTDA)
- New files XINFBRSN.TBL and XINFBSVC.TBL were added to support the IN Fallback feature of NTOA. These new files are located in directory C:\MPXBASE\DATAFILL.
- New file NTDAINI.INI (in directory C:\WINDOWS) contains the contents of both deleted files MPX.INI and MPXNTDA.INI.

-
- New file NTDAMSA.LNG (in directory C:\MPXBASE\DATAFILL) contains the contents of deleted file MSA.LNG.

Note: File NTDAMSA.LNG can be datafilled by using ProvTool. Refer to the *TOPS IWS RAMP and Provisioning User's Guide* for information about ProvTool.

- In file DATABASE.LNG, the string “DB Error” was changed to “Database Error.”
- File XDBERROR.TBL was updated with Default Reason Code datafill for EBAS 1.02.
- The contents of files MPX.INI and MPXNTDA.INI were combined into the new file NTDAINI.INI located in directory C:\WINDOWS.
- The contents of deleted file MSA.LNG are part of new file NTDAMSA.LNG located in directory C:\MPXBASE\DATAFILL.
- Datafill files CT4QNTDA.TBL and CORGNTDA.TBL are no longer datafilled through the NTDA setup tool; they are now datafilled through ProvTool.

Note: Refer to the *TOPS IWS RAMP and Provisioning User's Guide* for information about ProvTool.

- All INI, LNG, and TBL datafill files for all NTDA releases prior to NTDA release 6.0 are automatically overwritten with NTDA 8.0 default datafill. The previous datafill files are saved in IWS files in the same directory as the overwritten files. Custom datafill must be propagated manually.
- File MPXNTDA.EXE was renamed file NTDA.EXE.
- File MPXNTDA.KBD was renamed file NTDA.KBD.
- Files UNCHGTBL.TXT and PATCHTBL.TXT were deleted from directory C:\MPXBASE\DATAFILL.
- Files TASKON.BAT and TASKOFF.BAT replaced files UNLOCK.BAT and LOCK.BAT.

Note: Except for RAMP, the new files TASKON.BAT and TASKOFF.BAT are located in the C:\MPXBASE\TOOLS directory; for a RAMP, the new files are located in directory C:\RAMP\INSTALL\MPXBASE.

- The datafill patching process for upgrades was removed and replaced with a datafill preserve process. The upgrade strategy was changed so that release IWS 8.0 can be installed while preserving datafill previously loaded on an IWS position, and adding and changing only those datafill files that must be changed for proper system operation.
- Release NTDA 8.0 software can be installed without first removing (uninstalling) previously loaded NTDA software. The previous uninstall option is not present in the release 8.0 installation procedure.

-
- The previous MPXSetup displays are not a part of the NTDA release 8.0 software installation process.

Note: The MPXSetup tool has been reformatted and renamed the NTDA Setup tool. Refer to the *TOPS IWS NTDA/NTOA Plus Application Guide* for more information about the NTDA Setup tool.

- The NTDA 8.0 application files are placed in directory C:\IWSNTDA as opposed to directory C:\IWSNTDA\BIN for previous releases. Directory C:\IWSNTDA\BIN does not exist in release 8.0.
- All references to 2.93 were removed from the IWS setup utility because releases IWS 1.0 through 2.93 are no longer supported.

21.13 Revisions from Release 6.0 to Release 7.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.

— **New files:**

BKCALLDB.LNG (NTOA)
BKCALLSK.LNG (NTOA)
ESTWINW.LNG (NTOA)
XDBCLASS.TBL (NTOA)

— **Altered files:**

AACTWSFK.LNG (IWS base)
PANOACT.LNG (IWS base)
POSMSA.LNG (IWS base)
XFNCTS.TBL (IWS base)
OACALLD.LNG (IWSOA)
PDCALLD.LNG (IWSOA)

— **Deleted files:**

none

- Removed the Trace Menus from the MPXMTCGW.EXE application and the MPXBASE.EXE application. All the trace messages can be captured through RAMP.
- Removed DOS applications MPXCPLOG.EXE and MPXPROF.EXE.
- Removed the IWS Base trace options, MPXMTCGW trace options, and KeyRepeat option from MPXINI.INI. These parameters are no longer needed.
- Modified IWS Base position maintenance so that if the Audio card composite clock source is lost after RTS, the position will go BSY. If an operator is logged on and handling a call, the position will request to go unoccupied to force the operator off and then go BSY.

-
- Added ActID message throttling in the IWS Base application to prevent excessive network messaging. Added this note to the Performance section.
 - Added smartdrv to the AUTOEXEC.BAT file to decrease the position initialization time.
 - Added a way to enable or disable the Windows TASKMAN.EXE through RAMP profiling of the IWS Base application.
 - Added a way for Base to remove unused IWS files and directories from the PC. The files will be removed the first time Base starts.
 - Removed the Base Trace Window information from the Debug Options and MPXINI.INI Example sections.
 - Removed the Gateway Trace Window information from the Debug Options and MPXINI.INI Example sections.
 - Removed the profiler tool background information, description, HMI, and field descriptions sections. Added that profiling is accessed from RAMP. Refer to the *TOPS IWS RAMP and Provisioning User's Guide* for more information about RAMP profiling.
 - Removed the Position Message Trace Tool description and window options sections. Added that position message tracing is accessed from RAMP and API and OPP messages can be traced. Refer to the *TOPS IWS RAMP and Provisioning User's Guide* for more information about RAMP tracing.
 - Removed the Base Trace Tool Window descriptions from the Generate Test Log Tool and Position Audio Tool sections.
 - Removed the Gateway Maintenance Message Trace Tool section.
 - Removed the Call Simulator Tool section.
 - Removed the IWS Profiler and IWS Log file information from the Remote Access for Support Personnel section.
 - Added new colorblind support and text flashing sections to MPXPARM.INI.
 - Added LNP Info Called, LNP Info Calling, and LNP Info Special to support the LNP feature.
 - Added Calculate Est Chg to the functions menu to support the estimated call charges feature.
 - Added 160, Estimate Call Chg and 161, Internal Booked Call DB to IWS keyboard.
 - Eliminated all README files.
 - Changed the Windows swap file setting from 2048 to 4096. This change is required to accommodate larger disk sizes on new PCs such as the Intel MMX platform.

- The use of a mouse to manipulate window and field displays is controlled by settings in the AUTOEXEC.BAT and MPXNTDA.INI files. Default values are set to prevent the use of a mouse. If the use of a mouse is needed, with RAMP operations for example, this mouse protection can be changed as follows:

In the AUTOEXEC.BAT file, change the variable MOUSEON from MOUSEON=0 to MOUSEON=1. Also, if NTDA application software is loaded, the variable LeaveMouseOn=TRUE must be added to the [terminal] section of file MPXNTDA.INI to make the mouse pointer visible.

Note: File MPXNTDA.INI was replaced with file NTDAINI.INI in IWS release 8.0 (see section 16.8). For IWS release 8.0 and above, add the variable LeaveMouseOn=TRUE to the [terminal] section of file NTDAINI.INI.

21.14 Revisions from Release 5.0 to Release 6.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.

— **New files:**

CASESFKY.LNG (IWS base)
CASEAPP.LNG (IWS base)
LOGOTEXT.LNG (IWS base)
SCRPTLNG.LNG (IWS base)
SCRPTSCR.SCR (IWS base)
XCTRYDIR.TBL (IWS base)
XOLNSEQP.TBL (IWS base)
XOLNSRST.TBL (IWS base)
DATABASE.LNG (NTOA)
PCCDKSK.LNG (NTOA)
PCCCINFO.LNG (NTOA)
PDCALLD.LNG (NTOA)
XPCCTRIG.TBL (NTOA)
XDBCMP.TBL (NTOA)
XDBERROR.TBL (NTOA)
XDBRSVC.TBL (NTOA)
XDBVRST.TBL (NTOA)
XPCCSK.TBL (NTOA)
XPCCTRIG.TBL (NTOA)
XRCXSC.TBL (NTOA)

— **Altered files:**

XCT4Q.TBL	(IWS base)
IDLMSA.LNG	(IWS base)
XCLLORIG.TBL	(IWS base)
XDARBLG.TBL	(IWS base)
XRBLG.TBL	(IWS base)
OACINFO.LNG	(IWSOA)

— **Deleted files:**

none

- Addition of new functions in the Functions Menu datafill section.
- RAMP can now be used to connect to other token rings if commercial routers are used to interconnect token rings.
- Installation changes:
 - The MPXBAS4 and MPXBAS16 names have been changed to Base Standard and Base Extended. Base Standard will now support up to 5 non-registering applications and up to 5 registering applications. Base Extended will support up to 16 non-registering applications and up to 16 registering applications.
 - If upgrading from release 5.0 to 6.0, it will be necessary to use the installation diskettes to load the IWS base software on each position. The release 6.0 RAMP position will not communicate with any position loaded with release 5.0, but will communicate with positions loaded with release 4.1.
 - The CASE application (used with QMSCASE switch software) is installed with the Base application. It is a new registering application that should be specified in the MPXINI.INI file.
- Removal of the Memo function from the XFNCTS.TBL.
- Addition of the **Edit** and **Clear Memo** keys to the generic key set.
- Addition of the XCORGXSC.TBL and XCT4QXSC.TBL datafill tables used as cross reference files for IWS Scripting.
- Addition of new IWS keys available for datafill in XKBOARD.TBL:
 - Script Window Display
 - Up Arrow
 - Down Arrow
 - Edit
 - Clear Memo

- IWS base will modify the KeyboardDelay and KeyboardSpeed settings in the WIN.INI file to throttle messages to the IWS gateway positions.
- Updated two Quadron files (QCF.EXE and QCFLOAD.EXE) to support Pentium PC platforms.

21.15 Revisions from Release 4.1 to Release 5.0

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - XCLLORIG.TBL (IWS base)
 - **Deleted files:**
 - none
- Installation changes:
 - A Windows installation replaces the DOS based installation.
- Addition of the description of XCTRYDIR.TBL.
- Addition of new type (62) to XCLLORIG.TBL.
- Addition of IWS base tools and commercial tools sections. (These added sections were taken from *TOPS MPX-IWS Base Tools User's Guide*, which is obsolete for release 5.0. Note that the information for on-ring RAMP and for the provisioning and KeyBind utilities has been included in a new guide called the *TOPS IWS RAMP and Provisioning User's Guide*.)
- Addition of appendix sections S/W Specifics- Quadron X.25 Runtime System, S/W Specifics- IBM LAN Support Program, and IWS Fonts.
- Expansion of the XRBLG.TBL and XDARBLG.TBL to include an index for the switch ID per call. This allows for independent datafill of the restricted billing tables across a host/remote network.

21.16 Revisions from Release 4.0 to Release 4.1

The following changes were made from release 4.0 to release 4.1:

21.16.1 VO Load Release - IWS041AY

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
none
 - **Altered files:**
XKBOARD.TBL (IWS base)
 - **Deleted files:**
none
- The list of keys that are unavailable for assignment in the XKBOARD.TBL datafill table has been altered to include only those keys that are used as key modifiers. These keys include the two control keys, the two shift keys, and the two alt keys. Also noted is that the Tab key cannot be datafilled for IWS functionality with the KeyBind Utility because the Tab key is used within KeyBind as a means of maneuvering through its windows. The Tab key can, however, be datafilled by manually adding the key assignment to the XKBOARD.TBL file.

21.16.2 Beta Load Release - IWS041AS

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
none
 - **Altered files:**
none
 - **Deleted files:**
none
- Table XKBOARD.TBL can now be datafilled with application-specific keys (Action Set 7) and the Alt key modifier is allowed (mask 8).
- IWS base handling of the IWS base API message Release Focus is altered. When this message is received from a registering application, Base now sends a Remove Focus API message to the application with focus and then a Give Focus message to the application that should receive focus.
- New RAMP application is added for maintenance. The RAMP application replaces the MPXLOGS application.

- Additional DMS Error Code for position maintenance initiated by the RAMP application.
- Addition to the IWS provisioning tool to allow datafill of all existing Table and Language files.
- Installation changes:
 - Wollongong Pathway Access for Windows 3.2 is loaded during a new installation to support RAMP file transfers.
 - A new installation option “r” is added to the instbase command to load files for distribution with RAMP.
 - The instptch command is updated to now require a command line option with values “n” (new install), “u” (update), or “r” (load files for distribution with RAMP).
 - The RAMP application is entered in the mpxini.ini nonregistering line instead of the MPXLOGS application on the maintenance position.
 - Removed the H/W specifics- IBM Model 55 appendix. This hardware is no longer supported.

21.17 Revisions from Release 1 to Release 4.0

The following changes were made from release 1 to release 4:

21.17.1 VO Load Release - IWS040AR

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
none
 - **Altered files:**
none
 - **Deleted files:**
none
- Added information in the Performance section regarding application memory requirements.
- Installation changes:
 - Wollongong Pathway Access for DOS version 3.2 is now supported. Configuration parameters have changed to allow additional TCP/IP applications and allow WINSOCK compatibility.
 - New versions of ISA PC adapter cards now supported.

21.17.2 Beta Load Release - IWS040AM

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - none
 - **Altered files:**
 - MPXPARM.INI (IWS base)
 - XKBOARD.TBL (IWS base)
 - XFNCTS.TBL (IWS base)
 - **Deleted files:**
 - none
- Addition of the Character Translation option in the MPXPARM.INI file.
- Addition of the MPXIntlFixedFont, which will be used for the Message/Status Area, and SA/IC window displays.
- Addition of the Memo key action to the datafill file (XKBOARD.TBL).
- Addition of the Right arrow, Left arrow, and Delete keys to the keyboard datafill file (XKBOARD.TBL).
- Addition of the Memo function to the Functions Menu datafill file (XFNCTS.TBL).
- Addition of the Start CLG TBI, Stop CLG TBI, Start CLD TBI, & Stop CLD TBI functions to the Functions Menu datafill file (XFNCTS.TBL).

21.17.3 VO Load Release - IWS02.93

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - XRBLG.TBL (IWS base)
 - XDARBLG.TBL (IWS base)
 - **Altered files:**
 - XSERVS.TBL (IWS base)
 - **Deleted files:**
 - none
- The installation of XRBLG.TBL and XDARBLG.TBL files have been included in the Base installation.
- The format of the XSERVS.TBL has been changed to add the Restricted Billing table value that identifies which restricted billing table is used per service.

21.17.4 Revisions from Release 1 to Release 2

- The following datafill (INI, TBL, and LNG) files were added, altered, or deleted.
 - **New files:**
 - MPXPARM.INI (IWS base)
 - AUDIOINI.INI (IWS base)
 - RMPCONF.INI (IWS base)
 - **Altered files:**
 - MPXINI.INI (IWS base)
 - XTGDSPL.TBL (IWS base)
 - XCLLORIG.TBL (IWS base)
 - **Deleted files:**
 - none
- The IWS base application is now available in two configurations. One supports 4 registering and 4 non-registering applications and the other supports 16 registering and 16 non-registering applications.
- The IWS base application is expanded to run on Industry Standard Architecture (ISA) type platforms.
- Installation changes:
 - H/W Specific appendices are added to support the different hardware configurations.
 - Added new installation step for the commercial patch diskette.
 - Upgraded the Quadron runtime S/W to version 1.8.
 - Moved the configuration of the IWS colorsets into the base installation.
 - Changed the Wollongong installation to update the AUTOEXEC.BAT and CONFIG.SYS files.
 - Added the mouse control configuration.
- Datafill schema changes:
 - The following IWS datafill tables are moved from the *TOPS IWS Operator Assistance Application Guide*: XCASTS, XCLLORIG, XCT4Q, XLANG, XRBLG, XTGDSPL, XCDFA, and XAPPL.
 - Addition of the HeadsetDriver option to the MPXINI.INI file which determines whether or not the status of the headset will drive position states.
 - A new datafill file MPXPARM.INI is added which contains various IWS parameter datafill that may be used by IWS compliant applications. The file contains currency formatting datafill, number formatting datafill, and charge adjust indicator datafill.

-
- A new datafill file AUDIOINI.INI is added, which contains various settings for the IWS Audio Card.
 - The XTGDSPL and XCLLORIG datafill tables were expanded to include the switch ID as one of its table entries to accommodate a host/remote network configuration.
 - The Gateway/Position Maintenance chapter is added.
 - A new document MPXTOOLS, *TOPS MPX-IWS Base Tools User's Guide* is added to describe IWS base tools.
 - The VGA version 3.0 restriction is removed from the IBM DA Restrictions Appendix.

22.0 List of terms

API

Application Programmer's Interface: IWS base software uses an API to provide an open interface for applications from different vendors.

ARTIC

A Real Time Interface Coprocessor: The ARTIC card is often referred to as the "RTIC." card.

ASCII

American Standard Code for Information Exchange: ASCII is a standard coding method used by small computers to convert letters, numbers, punctuation, and control codes into digital format. There are 128 defined ASCII characters.

ASN

Access Stack Node: The ASN router is used in a stackable router architecture.

AT

Advanced Technology: AT is another name for ISA.

BCS

Batch Change Supplement

BIX

Building Interoffice Cross-connect: Bix is Nortel Networks trade name for an in-building termination and cross-connect system for unshielded twisted pair cables.

CB

Channel Bank: The CB is a multiplexer that puts many slow-speed voice or data conversations onto a high-speed link.

CCA

Calling Control Application

CCDB

Calling Card Database: A database that stores cardholder profiles for an enhanced calling card. Information from the CCDB determines whether restrictions apply to an enhanced calling card call, and it can help detect potentially fraudulent calls.

CM

Computing Module

DA

Directory Assistance

DHCP

Dynamic Host Configuration Protocol: This is the TCP/IP protocol that allocates IP addresses dynamically when they are needed.

DMA

Direct Memory Access

DMS

Digital Multiplex System: The DMS switch is a Nortel Networks central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

DOS

Disk Operating System: DOS was introduced by IBM.

DS-0 (DS0)

DS stands for Digital Signaling, and the 0 represents the level or speed of the signaling. DS-0 is a voice-grade channel with a speed of 64,000 Kbps. Also denoted as DS0.

DSU

Data Service Unit: The DSU (or modem) is used to connect a DTE (like a PC or LAN) to a digital phone line.

DTMF

Dual Tone Multi Frequency: A signaling method that uses a push button or touchtone dial to send out a sound consisting of two discrete tones, one high frequency and one low frequency. These tones are picked up and interpreted by telephone switches.

EBAS

Enhanced Billing Acceptance Service: The term EBAS is no longer used. It was replaced with Billing and Access Services.

EIU

Ethernet Interface Unit

EOL

End-of-Life: A product that Nortel Networks declares EOL is no supported.

ETMS

Enhanced TOPS Message Switch

FCC

Federal Communications Commission: The FCC regulates all interstate (but not intrastate) communications originating in the United States.

FTP	File Transfer Protocol: FTP is a protocol used to transfer files, such as load files and patch files, across the Ethernet local area network facility.
GTWY	Gateway
HMI	Human-machine Interface: IWS base HMI is the hardware and software that allows an operator to interact with and perform actions at a TOPS IWS position.
IBM	International Business Machines
IP	Internet Protocol: Along with Transmission Control Protocol (TCP), one of the two main parts of the TCP/IP protocol suite. IP enables information to be routed from one network to another. It is used in the public Internet and in private intranets.
ISA	Industry Standard Architecture: The ISA bus was introduced by IBM as a standard architecture for its PC motherboards.
ISG	Isolated System Grounding: A type of grounding topology.
ISN	Intelligent Services Node
ISO	International Organization for Standardization (IOS): The U.S. representative to IOS, or ISO as it often called, is ANSI.
IWS	Intelligent Workstation: IWS is the Nortel Networks programmable operator workstation used for traditional and non-traditional operator services.
LAN	Local Area Network: A short distance communications network.
LNP	Local Number Portability: LNP is similar in concept to 800/888 number portability, and it was mandated by the Telecommunications Act of 1996.

MD	Manufacture Discontinued: A product that Nortel Networks declares MD is no longer manufactured or offered for sale. Its existing deployment, however, continues to be supported until its EOL.
MSA	Message Status Area
MTC	Maintenance
NAV	Network Applications Vehicle
NTDA	Northern Telecom Directory Assistance
NTOA	Northern Telecom Operator Assistance: NTOA is an IWS application that provides toll and assistance capabilities for the operator. It is now called IWS Billing.
NTP	Nortel Networks Technical Publication
OEM	Original Equipment Manufacturer: The maker of equipment marketed by another vendor, usually under the name of the reseller.
OIA	Open Information Access: The IWS OIA application provides reference data such as emergency number information, rate and route information, phraseology, and city name through an external database.
OGT	Outgoing Trunk: A type of trunk used for calls going out to a distant toll center.
ORDB	Operator Reference Database: The ORDB is an external database implementing the OIAGPROT specification and interacting with the TOPS IWS OIA application to provide the operator with access to various types of reference data.
OSC	Operator Service Center: An OSC is a location where operators work at IWS workstations.

OPP	Open Position Protocol: An OPP interface is required to facilitate communication between a TOPS switch and an OPP-compatible terminal, such as the TOPS IWS.
PC	Personal Computer: A small computer designed for an individual user and based on microprocessor technology. The IWS system is based on current PC technology.
PCI	Peripheral Component Interconnect/Interface: A standard type of 32-bit local bus inside a PC designed by Intel.
PnP	Plug and Play: The PnP concept implies that a PnP component, such as an IWS adapter card, is operational after it is manually installed in a computer.
PROM	Programmable Read Only Memory: The contents of a PROM are not intended to be altered during normal operation.
PVC	Permanent Virtual Circuit
RAMP	Remote Access Maintenance Position: An IWS position that performs maintenance on other IWS positions to which it is connected. The RAMP functionality is intended for use by operating company personnel at customer sites and Nortel Networks personnel who provide support for IWS operations.
RAM	Random Access Memory: RAM is the primary memory in a computer.
RTIC	<i>See</i> ARTIC.
RTS	Return to Service
SA	Service Assistant: The person using the TOPS IWS assistance position to help general operators solve problems with their calls.
SDK	Service Development Kit: IWS uses an SDK consisting of documentation and example source code used to develop code modules that extend the capabilities of IWS service products.

SIP

Session Initiation Protocol

SNMP

Simple network management protocol: An application-layer protocol for managing TCP/IP based networks.

SPID

Service Provider ID: The SPID is a code that uniquely identifies the service provider. A SPID can apply to the calling number, called number, billed number, or requested number. The service provider identifier is sent from the DMS switch and displays in the MSA.

STD

Standard: A product that Nortel Networks declares Standard is one that is no longer under a development or design cycle and is generally available.

TA

Toll and Assist

TBD

To Be Determined: For example, the EOL date of the NTN51VB (Intel 600 MHz PC) is TBD.

TCP

Transmission Control Protocol: TCP one of two principal components of the TCP/IP suite of network protocols.

TCP/IP

Transmission Control Protocol/Internet: TCP/IP is a standardized suite of connection-oriented network protocols.

TMS

TOPS Message Switch

TOPS

Traffic Operator Position System

TPORT

IBM TransPORT Layer Communications Software

TR

Token-ring

UDP

User Datagram Protocol: A type of TCP/IP protocol used at the transport layer, and usually bundled with the IP software.

VPC

Virtual Position Controller

WAN

Wide Area Network: Large geographical distances are spanned by a WAN, which often consists of interconnected LANs.

X.25

X.25 is the recommended CCITT's packet switching interface for a DTE and DCE over a Public Switched Telephone Network.

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DMS-100 Family
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