



Shaping the Future of Converged Communications



AltiWare™ OE 4.5

System Administration & Installation Manual



AltiWare™ OE

Version 4.5

System Installation and Administration Manual

WARNING!

Toll fraud is committed when individuals unlawfully gain access to customer telecommunication systems. This is a criminal offense. Currently, we do not know of any telecommunications system that is immune to this type of criminal activity. AltiGen Communications, Inc. will not accept liability for any damages, including long distance charges, which result from unauthorized and/or unlawful use. Although AltiGen Communications, Inc. has designed security features into its products, it is your sole responsibility to use the security features and to establish security practices within your company, including training, security awareness, and call auditing.

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Liability & Warranty

Limitation of Liability

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FCC and Industry Canada Compliance

This section describes the requirements for compliance with Federal Communications (FCC) Rules and Industry Canada CS-03 standard.

Statement

This equipment has been tested and found to be in compliance with the limits for a Class B digital device pursuant to Part 15 and Part 68 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or residential environment. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

This Class B digital apparatus meets all requirements of the Canadian interference-causing Equipment Regulations. Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FCC Requirements

1. The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your rights to file a complaint with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
 - a. The telephone number to which this unit is connected.
 - b. The ringer equivalence number. [0.0B]
 - c. The USOC jack required. [RJ11C]
 - d. The FCC Registration Number. [see label on board]
 - e. Industry Canada (Industrie Canada) Certification Number. [see label on board]

Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

Service Requirements

In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to AltiGen or to one of our authorized agents. Service can be obtained at your Authorized AltiGen Dealer.

Equipment Attachment Limitations - Industry Canada

NOTICE: The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with the single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to the certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

The *Load Number* (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop that is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Number of all the devices does not exceed 100.

WARNING: Changes or modifications to this unit not expressly approved in writing by AltiGen Communications, Inc. could void the user's authority to operate this equipment.

Port Identification, Facility Interface, and Service Order Codes

The following tables list the manufacturer's network interface port designations, Facility Interface Codes (FIC), Ringer Equivalence Number (REN), or Service Codes and the network jacks for the required facilities. The facility interface and service order codes are with reference to the codes specified in Table 5 of Appendix D of FCC Form 730 Application Guide of January 1998.

Table 1. Quantum Network Trunk Interfaces for Loop Start, Ground Start and DID Services

Manufacturer Port Identifier	Facility Interface Code (FIC)	REN	Network Jack
ALTI-CD0408UD	02LS2	0.0B	RJ-11C
ALTI-CD0804UD	02LS2	0.0B	RJ-11C
ALTI-CD0408UD	02GS2	0.0B	RJ-11C
ALTI-CD0804UD	02GS2	0.0B	RJ-11C
ALTI-DID0408UD	02RV2-T	0.0B	RJ-11C

Table 2. Network Digital Trunk Interfaces for Digital Services

Triton T1/E1 PRI

Manufacturer Port Identifier	Facility Interface Code (FIC)	Service Order Code (SOC)	Network Jack
ALTI-T1E1-1	04DU9-BN	6.0P/AS.2	RJ-48C*
ALTI-TTT1-1	04DU9-DN	6.0P/AS.2	RJ-48C*
ALTI-TTT1-1	04DU9-1KN	6.0P/AS.2	RJ-48C*
ALTI-TTT1-1	04DU9-1SN	6.0P/AS.2	RJ-48C*

*The Triton T1/PRI interface connects to the Public Switched Telephone Network through an FCC registered NCTE which specifies the type of network jack to be used.

Table 3. Triton Analog Trunk Interfaces for Loop Start/Ground Start and Loop

Start Services

Manufacturer Port Identifier	Facility Interface Code (FIC)	REN	Network Jack
ALTI-TTAT-12GS	O2GS2	0.5B	RJ21X, RJ11
ALTI-TTAT-12	O2LS2	0.5B	RJ21X, RJ11

Disruption of Network

If any Quantum or Triton boards disrupt the telephone network, the telephone company can discontinue your service temporarily. If possible, the telephone company will notify you in advance. If advance notice is not practical, they will notify you as soon as possible. You are also informed of your right to file a complaint with the FCC.

Direct Inward Dialing (DID) Answering Supervision

Customers allowing Triton T1/PRI, Quantum, or Triton Analog Station Analog DID to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC rules.

Proper answer supervision occurs when:

1. The AltiServ system returns answer supervision to the PSTN when DID calls are:
 - Answered by the called station.
 - Answered by the attendant.
 - Routed to a recorded announcement that can be administered by the customer.
2. The AltiServ system returns answering supervision on all DID calls forwarded to the PSTN.

Safety

The following information is included in this publication for the use and safety of installation and maintenance personnel.

Important Safety Instructions

- Read all of the instructions before attempting to operate the equipment and before connecting the power supply.
- Always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture, or install this product near water. Never spill liquid of any kind on this product.
- Never push objects of any kind into this product through module openings or expansion slots, as they may touch dangerous voltage points or short out parts, which could result in the risk of fire or electrical shock.
- Refrain from opening the cabinet as there are high voltage components inside. Refer servicing to qualified service personnel. If you are a qualified service personnel, power down everything before opening.
- Do not attach the power supply cord to building surfaces. Do not allow anything to rest on the power cord or allow the cord to be abused by persons walking on it.
- To protect this equipment from overheating, do not block the slots and openings in the module housings that are provided for ventilation.

Safety with Electricity



DANGER

Do not take chances with your life. Follow these safety guidelines carefully.

High Voltages

- Observe all safety regulations and read the warnings, cautions, and notes posted on the equipment.
- Find the switch to power off the cabinet. Read the posted instructions.
- Ensure that equipment can not be powered from another source or controlled from a different circuit breaker or disconnecting switch.
- When a procedure requires that you power off the system:

— Lock the wall box-switch in the off position.

— Attach a DO NOT OPERATE tag to the wall box-switch.

- **Never assume** that the power is turned off. Always check to ensure that a circuit does not have power.

Note: Unit must have ground wire attached if trunks are attached and system is unplugged.

- Do not work alone. Work with another person who knows the locations of the power-off switches, especially if you are working with *exposed* electrical circuits. (See note above.)
- Follow the instructions in the manual carefully, especially when working with circuits that are powered. Disconnect power when instructed to do so in the procedures.
- Disconnect all power before working near power supplies unless otherwise instructed by a maintenance procedure.
- Disconnect all power before installing changes in machine circuits unless otherwise instructed by a maintenance procedure.
- High voltages capable of causing shock are used in this equipment. Be extremely careful when measuring high voltages and when servicing cards, panels, and boards while the system is powered on.
- Do not wear jewelry or other metal objects when working on the equipment.
- When possible, work with one hand so that a circuit is not created.
- Use caution when installing or modifying telephone lines. Never install telephone wiring during an electrical storm.
- Never install a telephone jack where it can get wet unless the jack is specifically designed for wet conditions.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

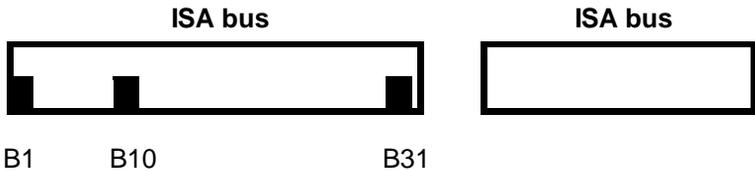
UL Regulatory Safety Requirements

Host Computer

1. Model Altigen/Altiserv apparatus is approved for connection to Telecommunications Systems specified in these instructions for use

subject to the conditions set out in them. Any other usage will INVALIDATE this approval.

2. The host machine shall be “CE” marked, with the internal ISA and PCI slots operating at SELV in accordance with EN60950, 1992, issue 2, +A4.
3. This apparatus MUST be professionally installed.
4. The host machine MUST be hardwired earthed in accordance with EN60950, 1992, issue 2, +A4, 1997, cl. 6.2.1.2 with an earth wire from the host machine earthing terminal to the building earth.
5. The host machine SELV circuit is connected to the protective earthing terminal in accordance with EN60950 cl. 2.5.
6. The host machine ISA bus pins B1, B10, or B31 (edge connectors on CPU mother-board/backplane) MUST be less than 0.1 Ohms to host machine earthing terminal.



7. AltiGen complies with PCI Board specifications Rev. 2.1 (5V 32-bit).
8. The power required by the host machine and the total of all adapter cards installed within the host environment, together with any ancillary apparatus, shall not exceed the power specification of the host machine.
9. It is essential that, when other option cards are introduced that use or generate a hazardous voltage, the minimum creepages and clearances specified in the following table are maintained. A hazardous voltage is one that exceeds 42.4V peak AC or 60V DC. If you have any doubt, seek advice from a competent engineer before installing other adapters into the host machine.

Clearance (mm)	Creepage (mm)	Voltage used or generated by host or other cards
2.0	2.4 (3.8)	Up to 50 Vrms or Vdc

Clearance (mm)	Creepage (mm)	Voltage used or generated by host or other cards
2.6	3.0 (4.8)	Up to 125 Vrms or Vdc
4.0	5.0 (8.0)	Up to 250 Vrms or Vdc
4.0	6.4 (10.0)	Up to 300 Vrms or Vdc

For a host or other expansion card fitted in the host, using or generating voltages greater than 300V (rms or dc), advice from a competent safety engineer must be obtained before installation of the relevant equipment.

Any other usage will **INVALIDATE** the approval of the apparatus, if as a result, it then ceases to conform to the standards against which approval was granted.

Approved Hardware

1. Host computer, with an earthing terminal, which is “CE” marked to include compliance to LVD and EMC European Directives.
2. Computer chassis will comprise the following as minimum:
 - a. Pentium II PC, 5 expansion slots, SVGA, IDE, 4.0 GB, keyboard
 - b. Color monitor, non-interlaced, 1024 x 768
 - c. Mouse, two button
 - d. Memory, at least 128 MB RAM
 - e. CD ROM
 - f. Modem 28,800 baud, approved by BABT (optional)
3. AltiGen Quantum cards, Rev. D:
 - ALTI-CD0804UD, ALTI-CD0408UD, ALTI-CD0012UD, ALTI-DID0408UD
4. AltiGen Triton cards:
 - ALTI-TTAS-12, ALTI-T1E1, ALTI-TTRS-12, ALTI-TTAT-12GS, ALTI-TTAT-12, ALTI-TTIP-4, ALTI-TTIP-8

Operating Software

Provided by AltiGen: Product name OE Rev. 4.5 or above.

Power Failure

In the event of a power failure, the first telephone extension on each card (except for the CD0012UD) is connected directly to the first exchange line, thus permitting access to dial the emergency services. This telephone must be powered from the PSTN or have local battery backup capable of calling the emergency services four hours after the power failure event occurs.

Wiring

All wiring must conform to National Telecommunications Wiring Regulations and the National Electrical Wiring Regulations.

Additional Requirements for Australia

1. **Warning:** For safety reasons, connect only ACA or AUSTEL permitted or certified equipment to the telephone ports (RJ11) of the patch panel or the audio in/out jacks on the AltiServ card.
2. **Warning:** THIS EQUIPMENT MUST ONLY BE INSTALLED AND MAINTAINED BY SERVICE PERSONNEL

Additional Requirements for USA and Canada

1. The interconnecting trunk line cord should be at least size 26AWG.
2. This trunk card must be fitted in host equipment with fire enclosures complying with the flammability requirements of sub-clause UL1950/CSA C22: 1995 4.4.3. In addition, the card must be separated from internal materials of flammability class or lower by at least 25 mm of air Class V-1 or better. Also, the card must be separated from openings in the top or sides of the enclosure by at least 25 mm of air or by a barrier of flammability Class V-1 or better unless the openings comply with one of the following:
 - not exceed 5 mm in any direction, or
 - not exceed 1 mm in width, regardless of length
3. Any holes in the chassis not conforming to the above should be covered with a metal perforated screen, with holes not exceeding 5 mm diameter, fixed internally.

Instructions for Hardwired Earth Connection

1. A supplementary equipment earthing conductor is to be installed between the product or system and earth, that is, in addition to the equipment earthing conductor in the power supply cord.
2. The supplementary equipment earthing conductor may not be smaller in size (8 AWG minimum, recommend 6 AWG) than the unearthed branch-circuit supply conductors. The supplementary equipment earthing conductor is to be connected to the product at the terminal provided, and connected to earth in a manner that will retain the earth connection when the power supply cord is unplugged. The connection to earth of the supplementary earthing conductor shall be in compliance with the appropriate rules for terminating bonding jumpers in Part K of Article 250 the National Electrical Code, ANSI/NFPA 70, and Article 10 of Part I of the Canadian Electrical Code, Part I, C22.1. Termination of the supplementary equipment earthing conductor is permitted to be made to building steel, to a metal electrical raceway system or to any earthed item that is permanently and reliably connected to the electrical service equipment earthed.
3. Bare, covered or insulating earthing conductors are acceptable. A covered or insulating earth conductor must have a continuous outer finish that is either green, or green with one or more yellow stripes.
4. Earthing conductor shall not run through steel conduit.

UL Hardware Preparation

Prepare the hardware as follows ensuring that the relevant manufacturer's installation instructions are complied with. *If you have doubts about any of these, call your supplier.*

1. This apparatus must be professionally installed.
2. Select a "CE" computer chassis according to the Safety Requirements above, ensuring that it has an external marked earth point.
3. The host machine ISA bus pins B1, B10 or B13 **MUST** be tested to ensure that there is less than 0.1 Ohms to the earthing terminal.
4. The host machine PCI bus pins complies with PCI Board specifications Rev. 2.1 (5V 32-bit).
5. Prepare the chassis, in accordance with the PC manufacturers instructions, to receive the necessary PC cards, ensuring the

installation of extension cards does not result in non-conformance to the Safety Requirements above.

6. When installing a system using AltiGen's cards, note that the continued compliance to the LVD and EMC EU Directives at the system level is the responsibility of the system supplier.
7. Prepare above cards ensuring all jumpers are set according to the manufacturer's instructions.
8. Attach suitable grounded ESD wrist strap between wrist and earth.
9. Follow the manufacturer's instruction and install above cards into PC.
10. Note: If more than three cards are using the MVIP, ensure that the Quantum or Triton board set as board zero is installed at one end of the MVIP cable and the board at the far end of the MVIP cable has its switch set to terminated (switch closed).
11. Replace PC outer case.
12. Connect a fixed earth from the PC to a suitable premises fixed earthing point. Note that the earth cable must be at least the same gauge as the live wire of the main cord and fixed to the earth terminal and the rear of the PC. (6 AWG recommended, 8 AWG minimum.)
13. Connect cable supplied with AltiServ to the "D-type sub-miniature" (25 pin) connector on the AltiServ card and the connector to the Modular RJ-11 Patch Panel.
14. Connect the building telecommunication wiring to the RJ-11 sockets.
15. Building telecommunication wiring should be installed according to the National Wiring Regulations for Telecommunications.

Warranty

What The Warranty Covers

AltiGen Communications warrants its hardware products to be free from defects in material and workmanship during the warranty period. If a product proves to be defective in material or workmanship during the warranty period, AltiGen Communications will, at its sole option, repair, refund or replace the product with a like product.

How Long the Warranty Is Effective

All AltiGen Communications products are warranted for one (1) year for all parts from the date of the first end user purchase.

Whom the Warranty Protects

This warranty is valid only for the first end user purchaser.

What the Warranty Does Not Cover

1. Any product on which the serial number has been defaced, modified or removed.
2. Damage, deterioration or malfunction resulting from:
 - a) Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
 - b) Repair or attempted repair by anyone not authorized by AltiGen Communications.
 - c) Any damage of the product due to shipment.
 - d) Removal or installation of the product.
 - e) Causes external to the product, such as electric power fluctuations or failure.
 - f) Use of supplies or parts not meeting AltiGen Communications' specifications.
 - g) Normal wear and tear.
 - h) Any other cause which does not relate to a product defect.
3. Shipping, installation, set-up and removal service charges.

How to Get Service

End user customers should contact your Authorized AltiGen Dealer for service.

Authorized AltiGen Dealers must follow the steps below for service:

1. Take or ship the product (shipment prepaid) to your AltiGen distributor or to AltiGen Communications, Inc.

All materials being returned to AltiGen must have an associated RMA number. RMA numbers are issued by AltiGen Customer Service and can be obtained by calling 1-510 252-4436. AltiGen reserves the right to refuse return of any material that does not have an RMA number. **The RMA number should be clearly marked on the outside of the box** in which the material is being returned. Please see the example below:

Attn.: RMA # 123
AltiGen Communications, Inc.
47427 Fremont Blvd.
Fremont, CA 94538

Upon authorization of return, AltiGen will decide whether the malfunctioning product will be repaired or replaced.

2. To obtain warranty service, you must provide 1) date/proof of purchase, 2) serial number of product, 3) your name and company name, 4) your shipping address and 5) description of the problem.
3. For additional information, contact AltiGen via e-mail at support@altigen.com.

Effect of State Law

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

Sales Outside the U.S.A.

For AltiGen Communications products sold outside of the U.S.A., contact your AltiGen Communications dealer for warranty information and services.

Preface: About This Manual

This guide is designed for dealers, administrators, and technicians who are responsible for installation, configuration, and administration of an AltiServ system.

Another manual, the *AltiServ User Guide*, covers the AltiServ end user features and functions such as call handling, voice mail, and web interface.

This guide contains the following chapters and appendices:

Chapter 1, Overview, describes the AltiServ functions, features, benefits, and new features with AltiWare OE Release 4.5.

Chapter 2, System Requirements, describes the system and hardware specifications needed, based on the number of trunks and extensions required.

Chapter 3, Software Installation, describes software specifications of the AltiServ system.

Chapter 4, Getting Around AltiAdmin, describes how to navigate the AltiWare Administrator application, which is used to configure and maintain the AltiServ system.

Chapter 5, System Configuration, describes AltiServ system basic configuration, phone numbers, number plans, out-call and in-call settings.

Chapter 6, Board Configuration, describes the Quantum and Triton boards.

Chapter 7, Trunk Configuration, describes trunk attributes, including channels.

Chapter 8, Extension and Workgroup Configuration, describes individual extensions, workgroup numbers, and call handing.

Chapter 9, Out Call Routing Configuration, describes default outgoing call routes and restrictions.

Chapter 10, Auto Attendant Configuration, describes pre-recorded prompts and menus.

Chapter 11, Additional Setup, describes audio peripheral configuration, MVIP clock, feature tips.

Chapter 12, System Data Management, describes backup and restore procedures.

Chapter 13, System Report Management, describes system management reports on summary, traffic, system log and call detail summary.

Chapter 14, Data and Internet Integration, describes setting up email, AltiReach, Exchange integration.

Chapter 15, Using TAPI, describes how to configure AltiGen's TAPI gateway to use off-the-shelf applications for calling contacts.

Chapter 16, Setting Up IP Extensions, outlines procedures for setting up IP extensions using AltiGen-certified clients.

Chapter 17, AltiWeb, gives procedures for installing and configuring the AltiWeb feature, which allows internet users to talk to an extension via VoIP and share web pages.

Chapter 18, Tools, gives a brief overview and general instructions for using AltiWare tools.

Chapter 19, Basic & Advanced CallRouter, gives general instructions for using Basic & Advanced CallRouter tools.

Appendix A, Chapter A, describes keys to the data in CDR reports.

Appendix B, Chapter B, describes technical support, customer service, repair and replacement policies and forms.

Glossary, Index, and Readers' Comment Form

Related Publications

Related publications include:

- AltiView User Guide
- AltiServ User Guide
- AltiConsole User Guide
- Contact Advantage Manual

AltiServ Office Solutions

The AltiServ Office system solutions – **AltiServ Small Office**, **AltiServ Office w/RAID**, **AltiServ Office Plus w/RAID**, **AltiCenter Office w/RAID** – are complete, turn-key, converged PBX systems pre-configured on industrial Windows 2000 Server platforms. The chassis are industrial grade, manufactured to AltiGen Communications exacting design specifications – meeting our most stringent requirements. Before shipping from AltiGen Communications, all systems are subjected to a rigorous Quality Control program and checked for proper software configuration, hardware installation, and switching functionality. When these systems arrive on your dock, you will find our software and hardware pre-installed and ready to go.

Configuration Overview

All systems ship with Windows 2000 Server (except AltiServ Small Office), AltiWare OE 4.5 and the corresponding hardware package – pre-installed in a generically-configured working condition to significantly reduce installation time. Also, all systems support traditional and IP phones.

AltiServ Small Office (Part# ALTI-OFFICE1)

The **AltiServ Small Office** solution is a system targeted for 8 to 25 users in the very small office market that need an affordable, entry-level capabilities along with the same features as AltiGen's largest systems.

Components

- AltiWare OE 4.5
- AltiWare OE Documentation Package
- 4x8 Quantum Analog Trunk/Station ISA Card
- 8 Station/14 Session License
- Windows 2000 Professional
- MVIP Cable
- 12-port connection panel (harmonica)
- BD25-50 pin male Telco cable

Chassis Specification

- 2 ISA x 2 PCI (2 ISA x 2 PCI available)
- 733mhz Intel Celeron Processor
- 128MB RAM
- 20GB IDE Hard Drive
- 48x CDROM Drive
- 3½ 1.44 Floppy Drive
- 101 key PS/2 keyboard
- PS/2 Microsoft Mouse
- 250 Watt Power Supply
- Two, front-mounted 49CFM hot-swappable fans
- Dimensions (W x H x D): 7.9" x 11.8" x 18.2"
- CE / UL / C-UL / FCC Approvals & Certifications
- Wall mountable cable

AltiServ Office w/ RAID (Part# ALTI-OFFICE2-R)

The **AltiServ Office w/ RAID solution** is the AltiServ Office solution with pre-installed RAID (Redundant Array of Independent Disks) support. This package is ideal for new installations and upgrades for existing customers with Quantum boards. RAID offers a cost-effective way to build disk subsystems by using "small form-factor" disks, much like those used in workstations. This backup storage architecture greatly enhances data redundancy and reliability.

Components

- AltiWare OE 4.5
- AltiView 4.5
- AltiWare OE Documentation Package
- One 4x8 Quantum Analog Trunk/Station ISA Card
- One 0x12 Quantum Analog Trunk/Station ISA Card
- One 12 port VoIP board
- 24 Station / 30 Session License
- Windows 2000 Server (Service Pack 2) w/ 5 users licenses
- MVIP Cable
- Two 12-port connection panels (harmonica)
- Two DB25-50 pin male Telco cables

Chassis Specification

- 4U Rack Mount Chassis w/ slide rails
- 8 ISA x 10 PCI (6 ISA x 8 PCI available)
- 850 mhz Intel Pentium III Processor

- 512 MB RAM
- 52x CDROM Drive
- Adaptec 2100S Ultra160 RAID Controller
- Three 18 GB SCSI Drives in RAID 5 Configuration (36 GB Available)
- 3½ 1.44 Floppy Drive
- 101 key PS/2 keyboard
- PS/2 Microsoft Mouse
- Two 400 Watt Load Sharing/Redundant/Hot Swap Power Supplies
- Three 86 CFM hot-swappable fans
- Dimensions (W x H x D): 19" x 7" x 26"
- CE/UL/C-UL/FCC Approvals & Certifications

AltiServ Office Plus w/ RAID (Part# ALTI-OFFICE3-R)

The **AltiServ Office Plus** solution is AltiGen Communications flagship product geared towards small-medium businesses with 75 to 175 users that are looking for additional capacity and expandability at a cost that is dramatically lower than enterprise systems. With included RAID support in an industrial grade chassis, AltiGen is providing a highly reliable and redundant converged PBX system.

Components

- AltiWare OE 4.5
- AltiView 4.5
- AltiWare OE Documentation Package
- 24-port Triton Digital T1/PRI PCI Card
- Three 12-port Triton Analog Station PCI Cards
- 36 Station / 42 Session License
- Windows 2000 Server (Service Pack 2) w/ 5 users licenses
- MVIP Cable
- Three 12-port connection panels (harmonica)
- Three DB25-50 pin male Telco cables

Chassis Specification

- 4U Rack Mount Chassis w/ slide rails
- 1 ISA x 17 PCI (1 ISA x 11 PCI Available)
- 850 mhz Intel Pentium III Processor
- 512 MB RAM
- 52x CDROM Drive

- Adaptec 2100S Ultra160 RAID Controller
- Three 18GB SCSI Drives in RAID 5 Configuration (36 GB Available)
- 3½ 1.44 Floppy Drive
- 101 key PS/2 keyboard
- PS/2 Microsoft Mouse
- Two 400 Watt Load Sharing / Redundant / Hot Swap Power Supplies
- Three 86 CFM hot-swappable fans
- Dimensions (W x H x D) 19" x 7" x 26"
- CE/UL/C-UL/FCC Approvals & Certifications

AltiCenter Office w/ RAID (Part# ALTI-CENTEROFFICE-R)

The **AltiCenter Office** solution is geared towards small-medium call centers with up to 100 agents that are looking for additional capacity and expandability at a cost that is dramatically lower than enterprise systems.

Components

- AltiWare OE 4.5
- Contact Center Advance Documentation Package
- 24-port Triton Digital T1/PRI PCI Card
- 12-port Triton Analog Station PCI Card
- 12 Agent / 18 Session License
- Windows 2000 Server (Service Pack 2) w/ 5 users licenses
- MVIP Cable
- 12-port connection panel (harmonica)
- DB25-50 pin male Telco cable

Chassis Specification

- 4U Rack Mount Chassis w/ slide rails
- 1 ISA x 17 PCI (1 ISA x 13 PCI Available)
- 850 mhz Intel Pentium III Processor
- 512 MB RAM
- 52x CDROM Drive
- Adaptec 2100S Ultra160 RAID Controller
- Three 18GB SCSI Drives in RAID 5 Configuration (36 GB Available)
- 3½ 1.44 Floppy Drive
- 101 key PS/2 keyboard
- PS/2 Microsoft Mouse

- Two 400 Watt Load Sharing/Redundant/Hot Swap Power Supplies
- Three 86 CFM hot-swappable fans
- Dimensions (W x H x D): 19" x 7" x 26"
- CE/UL/C-UL/FCC Approvals & Certifications

AltiServ Platforms

In addition to the office suite of products, AltiServ platforms can be built using a standard personal computer or server hardware with sufficient number of full-size ISA and PCI expansion slots. In addition, the platform must be equipped with sufficient cooling processing power, memory, hard drive storage capacity, power, and telephony ringing voltage for the total number of cards and extensions ports installed. **This AltiServ platform must be equipped with a Windows 2000 Server or a Windows NT 4.0 (or higher) Server with Service Pack 6a (or higher) installed.**

Overview

AltiServ™ is a multi-application computer telephony platform that combines AltiGen's Quantum™ and Triton™ telephony boards with AltiWare™ software in a standard personal computer platform. AltiServ uses Windows 2000™ or Windows NT Server™ operating system to provide advanced features and functionality, including the following:

- PBX
- Voice Mail
- Auto Attendant
- Email Server
- Call Detail Reports (CDR)
- Internet Integration
- TAPI (Telephony API) Service Provider
- Voice over IP
- Digital T1 Integration
- Digital PRI Integration
- Tie Trunks with Caller ID
- Out Call Routing

- Web Call Center (web-based calling)
- Data Directed Routing
- IP Extensions

The AltiServ computer telephony platform is built by installing one or more AltiGen boards into **full-size** ISA/PCI slots of a Windows 2000/Windows NT Server and then installing the associated AltiWare software. AltiGen Triton boards may also be added and must be installed into PCI slots. See “System Limitations” on page 65 for details on the number of boards you can install on one system.

Key AltiServ Characteristics



When you see this New icon, it means that the feature is new to AltiWare Release 4.5 and does not exist in earlier versions.

- **Quantum Board** - a telephony card that uses DSP technology to provide trunks, lines, and voice processing resources.

Quantum is an ISA compatible telephony card, which is designed around open software standards to facilitate implementation of third-party-provided applications in addition to the AltiServ-provided applications.

The Quantum telephony board has 12 analog ports.

Additional Quantum boards can be added to meet larger system requirements. The maximum number of Quantum boards in one system is up to 16 boards and depends on the number of ISA slots available and the selected computer platform performance characteristics.

Note: AltiWare OE Release 3.0 or higher does not support **Quantum Rev. C/C+** boards. Upgrade Quantum boards to **Rev. D** prior to installing OE 3.0 (or higher) software.

- **Triton Boards:**

— **Triton VoIP Board** - a PCI bus telephony board that provides voice processing resources. DSP engines reside on the VoIP board to perform voice processing functions needed for H.323 devices. The Triton VoIP board supports 4, 12, or 30 IP trunk ports. See “System Limitations” on page 65 for details on the number of Triton VoIP boards and ports you can install on one system.



Triton VoIP 12- and 30-port boards - Triton 8-port boards running on previous OE releases are automatically upgraded to 12-port boards with OE 4.5. With a 30-port upgrade license, the 12-port board can be upgraded to a 30-port board (one board upgrade per license) in OE 4.5.

- 5V PCI slot is required for each Triton board.
 - Additional VoIP boards (up to a maximum of 6 per system) can be added to meet larger system requirements.
 - The VoIP board can also be used individually as a third-party developer application platform.
- **Triton T1/PRI Board** - a PCI bus telephony board that supports either T1 or PRI digital trunks through software configuration. The Triton T1/PRI board supports 23 voice processing channels.
- 5V PCI slot is required for each Triton board.
 - Additional T1/PRI boards can be added to meet larger system requirements. The maximum number of T1/PRI boards in one system is up to six (6) T1/PRI lines (144 digital trunks).
- **Triton Analog Station Board** - a PCI bus telephony board that supports 12 analog extensions per board.
- Provides adaptive balance and selectable impedance
 - Analog and digital loop back test modes
 - Tip and ring reversal
 - FSK message lamp
 - 5V PCI slot is required for each Triton Analog Station Board.
-  **Triton Analog Trunk Board** - a long form factor PCI telephony card that supports 12 trunks, available in two models: loop start/ground start (LS/GS) and loop start (LS). Both models have the same features regarding LS. The LS/GS board is required when ground start trunks may be required. You can install up to 16 Triton Analog Trunk boards per system.
- **Triton Resource Board** - a PCI bus telephony board that provides monitoring and Barge In system support functions. You can install up to two (2) Resource Boards per system.

- **AltiWare System Software** - the AltiServ system telephony application software that provides an easy-to-use graphical user interface. It lets you configure, administer, and maintain the AltiServ system, and can be used as a platform for third-party enhanced application development. AltiWare software components such as Switching Service, Messaging Agent, SMTP Server, POP3 Server, AltiBackup, Exchange integration, and Advanced Call Router (new with Release 4.5) are NT services that are automatically launched when the AltiServ system starts. You do not have to login and start these applications manually. This provides better security and reliability for these services.
- **TAPI Gateway Support** - AltiServ is an open platform that allows third party telephony developers to develop applications for the AltiServ system. The system supports Telephony Applications Programming Interface (TAPI) 3.0.

AltiServ supports a complete TAPI service provider that accepts first party call control (such as AltiView, AltiAgent, and AltiSupervisor) and the third party client-server call control (such as call routing applications).

PBX Features

The PBX features include telephone switching for making calls, answering calls, and transferring calls. For more sophisticated business applications, AltiWare provides advanced features such as workgroup call routing, multiple trunk and route access codes, scheduled call routing, and flexible call restrictions. For effective system management, AltiWare provides information about system traffic and statistics to help the system administrator understand the dynamics of business communications and adjust resources such as the number of outside lines, accordingly.

For more information on using PBX features, see the *AltiView User Guide* and the *AltiServ User Guide*.

In addition to station-to-station dialing, the PBX features include:



AltiTouch Plus- With the AltiTouch Plus phone, a user can dial an extension and speak on the phone's intercom without ringing the callee. Feature available only on systems with the Triton Analog Extension board.



Account Codes (enhanced) - allows the user to input an account code on each call to track telephone usage in order to

bill back to clients or create a record of calls specific to a project and to budget and forecast expenses. **In OE 4.5, Forced Account Codes** force the user to input an account code on each call to track telephone usage. The administrator can configure which extensions are required to enter an account code.

- **Business Hours** - allows for setting morning and afternoon business hours for each day of the week.
- **Busy or Ring-No-Answer Call Handling** - sends calls to voice mail, another extension, or **Auto Attendant** if the called extension or workgroup is busy or does not answer. See “Setting Answering Options” on page 248 for more information on these features.



Call Forwarding and Remote Call Forwarding

(enhanced) - sends all calls to another extension or to an external telephone number. This allows users to redirect their calls to another location such as home or a branch office. Call Forwarding can be set up either at the source extension or at the destination extension on the system (Remote Call Forwarding). **In OE 4.5**, the limit on forwarded calls has been increased from one to ten.

- **Call Restrictions** - restricts users from dialing specific long distance area codes and phone numbers. Reduces the risk of toll fraud. Up to 20 digits are allowed to specify area codes and/or phone numbers that are restricted system-wide; up to 10 digits are allowed to specify area codes and/or phone numbers that are restricted on an extension by extension basis. Or, you may block ALL outgoing calls.
- **Caller ID** - fully supports the Bellcore Caller ID standard and displays alpha and numeric caller ID and name on a standard analog telephone with a display. Up to 64 characters are transmitted and displayed. If your local exchange carrier provides enhanced caller ID, such as caller name, this information will also be displayed.



Centrex Transfer (enhanced) - allows user to transfer or forward calls to an external telephone number. Once the transfer is complete, the trunk lines are released. **In OE 4.5**, AltiView and AltiAgent support Centrex Transfer.

- **Conference Calling** - the system supports conference calls with up to 6 parties. You can speak privately to each person before adding the person to the conference.
- **Dial Last Caller** - allows user to dial the last caller.

- **Hands Free Modes** - allows user to leave handset off-hook without having to hear the dial tone.
- **Direct Inward Dial (DID)** - allows an incoming trunk call to directly access an extension without Attendant intervention.
Note: If your local exchange carrier provides DID service, DID calls will automatically be steered to the appropriate destination.
- **Distinctive Call Waiting Tone** - allows three different call waiting tone cadences to distinguish between internal, external, and operator calls.
- **Distinctive Ringing** - allows three different ringing cadences to distinguish between internal, external, and operator calls.
- **Do Not Disturb** - blocks all calls coming into a specific extension and sends them to preprogrammed destinations such as voice mail or the operator.
- **AltiSpan™** - (or **Extended Caller ID**) inexpensive caller ID display phones can be used to deliver functionality previously requiring the use of proprietary telephones.
- **Feature Tips** - plays helpful tips and reminders for optimal use of AltiServ.
- **FSK-based Message Waiting** - allows message waiting that is based on FSK (Frequency Shift Keying), a modulation technique for data transmission. Tone or voltage-based message waiting options can also be selected. Phones with FSK-based message waiting indicator are highly recommended.
- **Hands Free Intercom Mode** - by pressing **#81** on their speaker phone, users can receive calls without having to pickup the handset to answer. **Hands Free Manual Answer Mode, #82**, allows another version of this function.
- **Hop Off Calls over T1/PRI Tie Trunks** - multiple AltiServ systems at the same or remote locations can be linked through a T1/PRI network. Also, this feature provides toll savings on long distance calls by allowing users to dial a remote AltiServ system via a T1/PRI trunk and then the destination phone number through PSTN.
- **Individual and System Call Pick Up** - allows users to answer a ringing telephone from another station.

- **IP Extensions** - the IP extension feature allows an H.323-compliant terminal device to connect to AltiServ. With a few exceptions (described in *Chapter 16, Setting Up IP Extensions*), IP extensions have the same functionality as an analog station.
- **Multiple Call Waiting with Personalized Greetings** - a personal queue that allows users to handle multiple incoming calls by letting callers wait in queue until the user answers the call. This allows users to transfer or park calls before answering the next call in queue. Users may also record and use personalized **Initial** and **Subsequent** greetings to be played for callers in queue.
- **Music or Message on Hold** - when the system is connected to an external audio source, this allows callers to hear music or pre-recorded messages while waiting on hold.



One Number Access (enhanced) - a feature that eliminates “telephone tag” by forwarding important callers to predetermined numbers, according to a designated schedule. Setup is available through the One Number Access page of Extension Configuration and/or web-based AltiReach and AltiView management. **In OE 4.5, ONA passwording** is optional. The user can press any key to pick up a ONA call.

- **Operator Off-line** - when this feature is enabled, all calls are directed to the Auto Attendant. When the caller dials 0 and the operator is not available, the call is routed to the operator mailbox.
- **Out Call Routing Configuration** - allows outgoing calls to be directed to particular trunk routes, based on parameters assigned in AltiAdmin, and supporting the new tenant tables.
- **Outside Call Blocking** - when this feature is enabled, access to outside lines is temporarily disallowed.
- **Overhead Paging** - allows the use of voice paging over an internal public address system.
- **Overhead Paging by Trunk** - allows the use of voice paging or broadcasting through a trunk without checking call progress.



Personal Call Park and Pick Up (enhanced) - users can park calls at one station to be picked up at another station. Up to 50 calls may be parked at one station simultaneously. **In AltiWare OE Release 4.5, calls parked to a workgroup are**

protected. Only workgroup agents or the person who parked the call can pick it up.

- **Power Failure Transfer** - upon loss of power, this feature allows the first trunk and first extension on each Quantum board to be automatically connected. Ensures emergency outside line access in case of power failure.



Return to Auto Attendant - after leaving a voicemail message and pressing # to send it, incoming trunk callers are prompted with the option to return to the Auto Attendant to try another path or person.

- **System Call Park and Pick Up** - allows user to park and pick up a call at a public “location.” The system allows user to park up to 100 calls at any given time.
- **Single Call Waiting** - allows users to put an existing call on soft hold and take a second call upon hearing a Call Waiting tone. The user can then alternate between the two calls.
- **Station Log In/Log Out** - enables system users to move an extension number from one station to another, or deactivate an extension on a long-term basis.
- **Schedule-Based Call Routing** - allows administrators to determine call routing paths by use of Allow and Deny tables (based on cost and usage), on a specific predetermined schedule.
- **System and Station Speed Dial** - allows programming of frequently used telephone numbers for speed dialing. Up to 60 system speed numbers can be programmed. Up to 20 station speed numbers can be programmed for each extension. For easy programming, AltiWare uses friendly voice prompts to guide extension users to program their station speed dial numbers.
- **System Callback from Auto Attendant** - allows the user to instruct Altiserv to call the user at a remote location after the user logs in with extension and password. This is useful for traveling users who don't want to accrue expensive toll charges while traveling, especially from international locations where there is no access to toll-free numbers. See “Planning is Essential” on page 269 for more information.
- **Transfer to AltiGen Voice Mail System** - allows anyone in the office to send an outside user into the AltiGen Voice Mail System by pressing **FLASH # 40** while connected to the user.

- **Transfer to Auto Attendant** - allows a user to transfer a call to an Auto Attendant by pressing **FLASH #15** and then the 2- or 3-digit Auto Attendant number.
- **Trunk Interface:**
 - **Analog** - loop start, ground start, and wink start (DID).
 - **Digital** - PRI-ISDN, T1 E & M, loop start, and ground start.
- **Virtual Extensions** - an extension that is not associated with a physical port, but allows access to the AltiGen Voice Mail System features and telephone sharing. Up to 2,000 total (physical + virtual) extensions can be created on a system. Access to virtual extensions is through voicemail use, a physical extension, a trunk, or via AltiView or AltiAgent.
- Flexible **Wrapup Times** and **Inter Call Delays** - can be used to set delays before the system sends the next call to an extension. Further, the user can manually set the extension state to **Ready** or **Not Ready** to receive calls.

Automatic Call Distribution Features

Automatic Call Distribution (ACD) features include:

- **Auto Logout** - a workgroup member can be automatically logged out if a call is not answered.
 -  **Logout on system startup or reboot** - all workgroup members are set to the “Logout” state at system startup or reboot.
 -  **CDR Search (enhanced)** - Contact Advantage option that allows workgroup supervisors to search CDR files and workgroup CDR statistics for records that match selected criteria. **In OE 4.5**, CDR Search has been redesigned to provide workgroup statistics from the real-time monitoring function used in the AltiSupervisor client application. New settings in AltiAdmin let you specify time intervals for saving RTM data.
- **Call Queuing** - places caller in a queue to wait until an ACD workgroup member becomes available.



Call Queue Announcement - an optional feature with Call Router Advanced, before a call enters a workgroup queue, the system announces the expected wait time or call queue length to the caller.

- **Configurable Call Wrapup Time** - allows a workgroup member some time in between calls to wrap up on notes, prepare for the next call, or logout of the workgroup. This wrapup time is configurable on a per-member basis.



Holiday Routing - routes inbound DNIS and trunk calls on designated holidays to specified destinations. You can create separate routes for business and non-business hours on half-day holidays.

- **Multiple Queue Announcements** - allows each workgroup to have its own set of unique audio announcements. Up to five announcements can be configured for each workgroup. The intervals between announcements can also be configured. See “Setting up Workgroups” on page 231 for more information on this feature.
- **Multiple Workgroup Membership** - allows each extension to belong to multiple workgroups. The system can be configured with a maximum of 32 workgroups. See “Setting up Workgroups” on page 231 for more information on this feature.



Multiple Workgroup Log In and Log Out - lets workgroup agents quickly log in and out of multiple workgroups.



Workgroup membership - Workgroups can now have up to 128 members.

- **Ready/Not Ready** - members can also enable a “ready” (#90) or “not ready” (#91) status to inform the system whether or not the agent is able to receive the next call.
- **Service Level Threshold** - a time value for callers waiting in queues. The performance statistics show when workgroup calls are queued for longer than a prescribed value.
- **Workgroup Call Pickup** - allows pickup of calls to a specific workgroup.



Workgroup Monitoring (enhanced) - allows real-time monitoring of workgroup information—trunk state, workgroup status, call queue status, details of workgroup

queue entries and agent status. Limited monitoring is available through a workgroup view window in AltAdmin or remotely through AltReach. **In OE 4.5, Caller ID** identifies agent calls as inbound or outbound, internal or external.



Workgroup Call Routing (enhanced) - for special call handling applications, incoming calls can be routed to a workgroup. For automatic distribution, calls can be distributed to the first available workgroup member, or among workgroup members in a round-robin fashion. When all the members in a workgroup are busy, calls can be overflowed to another workgroup or extension, directed to the workgroup voice mail, to workgroup members voice mail, or placed in the call queue for the next available member. When the first called member fails to answer the call within the number of rings configured, the system can direct the call to the next available workgroup member. The system can also ring the longest idle member or ring all available members. **In OE 4.5**, calls encountering RNA among all agents can be automatically directed to an alternate destination.

- **Workgroup Member (Agent) Login/Logout** - allows workgroup members to log in and out of a workgroup so that incoming calls bypass the workgroup member (agent) who has logged out and the call is automatically routed to other active workgroup members or ACD agents. This feature is available only to workgroup members and is disabled through workgroup configuration. Logout does not block direct calls to the workgroup member's extension.
- **Workgroup Logout Reason Codes** - allows a workgroup member to enter a reason code when signing off. Up to 20 reason codes may be defined.
- **Workgroup Silent Monitoring** - with the Triton Resource Board, allows a workgroup supervisor to silently monitor calls between workgroup agents and callers.



Workgroup Barge In (enhanced) - with the Triton Resource Board, allows a workgroup supervisor to barge into calls between workgroup agents and callers. **In OE 4.5**, the supervisor can barge in on a specific agent by entering the agent's extension via the telephone.



Outbound workgroup call monitoring - Workgroup supervisor can monitor agent's inbound and outbound calls. If an agent wants to make a personal call that is not monitored,

the agent must either log out or set the Outbound Workgroup to N/A (if enabled in AltiservAdmin).



Workgroup Queue Overflow Handling - routes incoming calls to an alternate destination when the queue is already full, or when incoming calls will have an unacceptably long wait time.



Call to Queue Alert - agents can be alerted via a beep and a screenpop when a call enters the workgroup queue.

Automated Attendant Features

The Auto Attendant features provide quick and courteous processing of all incoming calls. An Auto Attendant can be configured to serve as a primary Attendant or as a backup to a receptionist.

Auto Attendant features include:



Dial By Name (enhanced) - allows a caller who does not know your extension number to spell your name using the telephone key pad. The system will search the Directory and make a match on the name to connect the caller to the intended party's extension. **In OE 4.5**, the caller can match first OR last name when dialing by name.

- **Data-Directed Routing** - allows the routing of calls directed by the caller's input (digit or text). Third party applications can be used to route incoming calls based on caller information.
- **Digit Collection** - caller can be prompted to enter numbers, which are then collected and used for routing the call.
- **Direct Station Transfer** - allows the Auto Attendant to handle all incoming calls instead of being answered by an operator. Callers can dial an extension number to reach a specific station or use the name directory to find an extension number.
- **Multiple Attendant Support** - allows up to **255** programmable Auto Attendants.
- **Name Directory Service** - allows callers to hear a list of employees and their extension numbers.
- **Nine-level Programmable Menus** - allows multiple levels of recorded menu options for specific routing of calls.

- **Programmable Time-Out Handling** - allows the administrator to select the action the system should take if there is no digit detected by the caller within specified seconds.
- **Schedule-Based Call Processing** - routes calls differently for different times of the day.
- **Web-based Call Processing** - allows the Auto Attendant to accept calls placed over the World Wide Web.

AltiGen Voice Mail Features

The AltiGen Voice Mail System is a sophisticated message management system that provides the calling and the called parties with enhanced communication features. It allows greater accessibility, faster reply time between parties, and reduces the frustration of telephone tag.

The AltiGen Voice Mail System is described in the *AltiServ User Guide*. A summary of voice messaging features include the following:

- **AltiGen Voice Mail Access from Voice Mail Greeting** - users can log into the AltiGen Voice Mail System by pressing * during the voice mail greeting of any extension.
- **AltiGen Voice Mail Quick Features** - allows direct access to a specific AltiGen Voice Mail menu without having to login to AltiGen Voice Mail System.
- **Call Forwarding from Voice Mail** - users can set up Call Forwarding from within the AltiGen Voice Mail System. This allows users to set up Call Forwarding away from the office and without having to access AltiReach or AltiView.
-  **Disable a Mailbox** - voice mailboxes can be disabled so that callers cannot leave messages. This can be useful for maximizing system capacity or controlling access to phone services.
-  **Configurable voicemail playing order** - Administrators can configure users' voice mailboxes to play the oldest or the newest message first.
- **Future Delivery** - allows users to record a message to be delivered at a specific time and date in the future, up to one year in advance.

- **Information Only Mailbox** - a mailbox can be configured to announce customized pre-recorded information when accessed. This mailbox does not allow callers to leave a message, but only to listen to the message announcement (personal greeting) from the mailbox. To repeat the message, callers are instructed to press the # key. See “Setting up Extensions” on page 219 for more information on this feature.
- **Making a Call from the Altigen Voice Mail System** - allows users to make a call from within the Altigen Voice Mail System by pressing # at the Main Menu and entering the external phone number. This is especially useful while traveling where users can respond to all messages and make *other* calls not associated with a message, all with *one* call into the Altigen Voice Mail System. This can result in significant savings. The use of this privilege is configurable on a per-user basis.
- **Message Management** - receives, sends, forwards, deletes, and replies to messages.
- **Message Notification of E-mail Messages** - designed to alert you of new voice and/or email messages in your mail box. (At this time, notification of email messages can only be configured by the system administrator.) The Altigen Voice Mail System will notify you by calling an extension, phone or pager number. A notification schedule can be set for business hours, after business hours, at any time or at a specified time. For voice messages, you have an option of being notified of all messages or only urgent messages. You may enter up to 80 digits for the destination (notification) phone number. Operator-assisted paging is also supported.
- **Personal Greeting** - allows users to record greetings in their own voice to be played when callers reach their voice mail.
- **Priority Delivery** - allows users to determine the priority of message delivery such as normal or urgent.
- **Private Messaging** - allows users to leave a private message in their voice mail for the expected caller.
- **Reminder Calls** - are used to remind yourself of important meetings, things to do or people to call.
- **Remote Access** - allows users to access the Altigen Voice Mail System from any telephone by dialing into the main system number and pressing # to login.

- **Voice Mail Distribution List** - allows the user to use system distribution lists, or create and use personal distribution lists for forwarding voice mail. Up to 100 distribution lists can be created. Each distribution list can have up to 64 entries, and any entry can be another distribution list.
- **Zoomerang** - allows users to listen to messages in the AltiGen Voice Mail System, prompt the system to automatically call the party who left the message, and then return to the AltiGen Voice Mail System to continue checking messages, all in a single call into the AltiGen Voice Mail System. If the caller ID information is not captured, the user may enter the “call back” number manually.

Internet Integration Features

Internet integration features include:

- **AltiReach™** - a Web-based management tool that provides a way for users to visually manage their call handling options such as One-Number-Access, CallView, Message Notification, Speed Dial Numbers and other personal phone settings using a standard Web browser. Workgroups can also be monitored and configured over AltiReach. AltiReach is further described in the *AltiServ User Guide*.
- **Built-in E-mail Server** - a complete SMTP/POP3 email server is built into the AltiServ system so that all you need is an SMTP/POP3 email client to send and retrieve Internet email. The system allows use of alpha character-based passwords.
- **CallView™** - a Web-based Java application that allows for call control using a standard Web browser to manage multiple incoming calls and view information including Caller ID, calls in queue and extension status.
- **Exchange Integration** - provides unified messaging between the AltiServ and a Microsoft Exchange server on the LAN. The state of both servers will be synchronized. This feature allows for dynamic synchronization of mail between the two servers so that deleted messages from one server get automatically deleted in the other server. Similarly, a new message sent to one server is transmitted to the other server. This way, the message can be accessed or deleted from either

server. For example, when a voice mail is deleted from AltiServ, it is automatically deleted from the Exchange server too. The address of the Exchange server must be the name of the machine or the fully qualified domain name.

- **Mail Forwarding** - allows you to forward mail (email and voice mail) to an SMTP-based mail server. The destination server address should be the address of the SMTP server to which all mails should be forwarded. This address can be an IP address such as *100.200.101.201*, a domain name such as *altigen.com*, a fully qualified domain name such as *symphony.altigen.com* or a machine name such as *symphony*.
- **Mixed-Media Messaging** - allows users to combine multiple forms of communication (such as voice mail, email, data file, etc.) into a single e-mail message. The user can record a voice message using a telephone handset or microphone on a multi-media PC and attach it to the AltiGen Voice Mail System for delivery to an internal user (LAN) or an external user (internet) who can listen to it from the PC. The recipients of the AltiServ system also have the option of listening to annotated messages from the handset.
- **Remote Download of Messages via Internet** - allows users who are traveling and/or working at home to download all new voice and email messages in their the AltiGen Voice Mail System Post Office Box via a local internet access line.
- **Support of Internet E-mail Standards** - allows the user to send and retrieve email using any SMTP/POP3 e-mail client.

System Administration Features

System Administration features include:

- **Access Restriction** - allows administrators control over system user access to features and trunks.
- **AltiAdmin Remote Administration** - a version of the AltiWare Administrator GUI application that can be installed on a Windows 2000 or Windows NT 4.0 client computer with Service Pack 6a (or higher) installed and used on the LAN to remotely administer one or more AltiServ systems. If there is no firewall on the LAN where AltiServ resides, AltiAdmin can be installed and used to manage

AltiServ over the Internet from a remote site as well. This also allows the AltiWare Administrator on the AltiServ to be closed without affecting the telephony functions that continue to run in the background on the server.

- **Apply To Feature** - applies changes (only the field that was changed) to multiple extensions, trunks or channels instead of having to change them one at a time.



Call Detail Reporting (CDR) (enhanced) - the system collects and records information on outgoing and incoming phone calls, such as length of call, time of call, number of calls. This data can be written to an internal database or to an external SQL database. Updated data keys for the CDR reports are shown in “Call Accounting Report Formats” on page 409. **In AltiWare OE Release 4.5**, CDR Search has been redesigned to provide an interface that captures workgroup statistics from the real-time monitoring function used in the AltiSupervisor client application. New settings in AltiAdmin let you specify time intervals for saving RTM data.



Configuration Reader - a tool that summarizes details of your AltiWare configuration, so you can send a single file to AltiGen Tech Support if needed.

- **DNIS Routing Tables** - incoming trunk calls can be routed to trunks to Auto Attendants, extensions, workgroups, etc., based on DNIS digit information configured in system administration routing tables.
- **Email and Voice Mail Storage** - can be placed on drives other than the AltiServ server.



Extension Checker - a tool that checks the security status of every extension in your AltiWare system.

- **Monitor List** - lets you select the Physical or IP extensions you wish to monitor. Monitoring is available within AltiView and AltiSupervisor.
- **Out Call Routing Configuration** - allows outgoing calls to be directed to particular trunk routes, based on parameters assigned in AltiAdmin, and supporting the new tenant tables.



Enhanced Password Security - allows administrators to lock extensions that have been “attacked” with false password attempts and to set default system passwords for newly created

or newly assigned extensions (more secure than the default of an exact extension/password match). Password requirements are also stricter.



Auto Attendant Configuration File - lets you export your complete Auto Attendant configuration to an html file.

- **Split Area Code Support** - allows you to identify area codes and prefixes that are exceptions to the standards of how area codes and long distance prefixes are normally used. For example, this configuration allows the system to treat calls to certain areas as local calls. See “Setting Area Code Toll Definitions” on page 154 for more information.
- **Tenant Service** - allows certain trunks to be shared among multiple groups. In this manner, for example, an AltiServ system in a large building can be shared among smaller offices, or tenants. A tenant table can be created to list the tenants who share an AltiServ system usage. Each extension can be assigned a tenant entry to which it belongs. Each trunk can be associated with a tenant entry.
- **Voice Mail Distribution List** - allows you to create a group of extensions for forwarding voice mail. Up to 100 distribution lists can be created. Each distribution list can have up to 64 entries, and each entry can be another distribution list.
- **Voice Mail Alert** - An announcement can be sent to Voice Mail when the email server disk is full.

T1/PRI Features

T1/PRI features include:

- **ANI/DNIS Transport over T1/PRI Tie Trunks** - ANI (Automatic Number Identification) and DNIS (Dialed Number Identification Service) digits for calls can be forwarded and transmitted between extensions at remote AltiServ systems.
- **Collecting Caller ID/DID Digits for T1** - allows you to configure the format and sequence of caller ID and DID digits using DTMF for a T1 connection. See “Triton T1/PRI Trunk Properties” on page 210 for more information on this feature.
- **Support for up to 6 T1/PRI lines.**

Voice over IP Features

Voice over IP features include:

- **AltiAdmin Remote Administration** - remote AltiServ locations running AltiWare IP can be managed using AltiAdmin.
- **AltiServ-to-AltiServ Networking Capability** - multiple AltiServ systems at the same or remote locations can be linked through an IP network. Also, this feature provides toll savings on long distance calls by allowing users to dial a remote AltiServ system via an IP trunk and then the destination phone number through PSTN. See “VoIP Hop Off Call Support” on page 54.
- **AltiServ Feature Support** - many of the AltiServ features are also available when using IP trunks. See “VoIP Hop Off Call Support” on page 54 for more details.
- **Board ID Support** - The board ID of the Triton IP board is displayed in the AltiAdmin board window. This can be used to relate a Triton VoIP board to a hardware board.
- **DTMF Remote Carriage** - DTMF tones and/or digits are detected and sent out-of-band, over a reliable TCP/IP channel to the remote AltiServ, to guarantee the delivery.
- **Dialing Prefix Filter** - users may select a PSTN or IP trunk when making outgoing calls by dialing a configurable access code.
- **Echo Cancellation** - due to bandwidth limitations and device loading, long delays may occur during packet delivery process, which worsens the echo effect of recorded and live voice speech. Echo cancellation is provided to maintain reasonable voice quality.
- **G.711 Codec** - toll quality (64K) digital voice encoding, which guarantees interoperability for better voice quality.
- **G.723.1 Codec** - a dual rate audio encoding standard, which provides near toll quality performance under clean channel conditions. VAD (Voice Activity Detection) capability is also included to suppress silence packets.
- **H.323 Standard Support** - AltiWare IP is based on the H.323 protocol, which is an emerging ITU standard for multimedia communications over IP.



IP Extensions (enhanced) - the IP Extension feature allows an H.323 compliant terminal device to connect to AltiServ. IP extensions have the same functionality as an analog station. **In AltiWare OE Release 4.5**, workgroup agents can log in from a remote location using IP extensions.

- **IP Port Support** - AltiWare IP port density is increased to 48 ports. The system supports up to six (6) Triton IP boards, with each board supporting eight (8) IP ports.
- **Integrated Administration** - calls through both PSTN and IP networks can be managed using a single point of administration.
- **Integrated VoIP Gateway** - because the VoIP gateway is built-in to the system, translation of PSTN calls to IP calls and IP to PSTN calls are smoother and more successful. Also, the Overlap dialing is enabled and the dialing sequence is smoother for end users. Without the need for cable configuration and the purchase of additional analog ports, there can be significant time and cost savings.
- **Jitter Removals** - due to various delays in the IP network, audio packet streams may be delivered late or out of order. AltiWare IP is able to buffer incoming packets and re-sequence them by maintaining a queue. This queue is adjustable to accommodate different network environment characteristics.
- **Ring-Back Tone Generation** - ring back tones can be generated to other analog trunk or extension lines on behalf of the IP trunk.
- **Silence Detection and Suppression** - A silence detection feature enables the following:
 - Silence Suppression - when silence suppression is enabled and silence is detected, AltiWare IP stops sending packets to the other side. The other side does not receive any packets and plays silence.
 - AltiWare IP disconnects the voice mail session when a silence period exceeds 70 seconds during voice mail recording over VoIP.
- **VoIP Hop Off Call Support** - allows an extension to access a T1 or CO trunk on the remote system and “hop off” to dial an outside telephone number. This “hop off” feature can be enabled or disabled on the remote system. Outcall restrictions for hop off calls are configurable.

Voice over IP Session Support AltiServ Features

The following trunk-related AltiServ features are supported during IP trunk call sessions. Refer to the *AltiServ User Guide* for more details on how these features work over IP trunks.

- Incoming and Outgoing Trunk Calls
- Call Transfer To and From IP Trunk (Blind & Supervised)
- One Number Access
- Message Notification
- Reminder Calls
- Multi-Location Conferencing
- Call Park
- Call Waiting
- Call Forwarding
- Automatic Call Distribution
- Auto Attendant
- System Call Back
- Calling Out from Voice Mail
- Zoomerang
- Dial Last Caller
- Speed Dialing
- Call Accounting
- Caller ID
- Voice Mail
- MS Exchange Integration
- AltiConsole Client Support
- AltiReach Support
- AltiView/AltiView IP Extensions

AltiWare Tools

AltiWare OE comes with useful tools for testing, diagnosing and operating your AltiWare configuration.

- **AltiDBReader** - allows you to view historical data from a database, which can be saved to a file.

- **Basic CallRouter** - a call-handling tool that uses the AltiGen system to route incoming calls based on compounded business rules and on caller information contained in a separate customer business database.
 -  An optional, licensed-required version, **Advanced CallRouter**, runs as a call router service. Users can write SQL to query an external database and provide “If-Else” logic to handle non-compliant comparisons and exceptions. Requires the purchase of a license.
 -  **MultiSite Configurator** - an application that allows a system administrator to configure several distributed AltiServ systems from a single system. The tool can be run on any server (local or remote) to an AltiWare system that has a connection for access to all the servers to be managed.
- **MVIP Test Tool** - detects one-way connection, cross talk, bad MVIP cable, and static noise problems.

Optional Add-On Software



Additional new features for these applications are described throughout this chapter.

- **AltiConsole™** - a personal, computer-based Attendant console connected to the AltiServ over a network; emulates a standard, hardware-based Attendant console through software; has the flexibility of adding new features through software without changing the hardware. **In AltiWare OE Release 4.5, the following enhancements have been made:**
 - A message waiting indicator is added.
 - The workgroup call queue is displayed (operator cannot retrieve calls from the display).
 - Supports multiple operators.
 - Operator can receive an alert via a beep or screenpop when a new call comes in.
- **AltiView/AltiView IP Extension** - a Windows-based desktop call control and window popup application that interacts with AltiServ through AltiLink Plus and provides easy-to-use call control, monitoring and logging capability. **In AltiWare OE Release 4.5, the following enhancements have been made:**

Outlook and Outlook Express integration is available, enabling single-click dialing from a Contacts folder.

Convenient right-click functionality is added.

A Do Not Disturb button is added.

Program exit from the main window is enabled.

QuickNet integration is added.

An optional add-on recording feature (NOVO) is added.

- **AltiAgent™** - a workgroup user version of AltiView; in addition to AltiView features, also provides call statistics, call wrap up with data entries, logon/logoff with reason codes and agent ready/not ready status.
- **AltiSupervisor™** - a supervisor version of AltiView; in addition to AltiView features, also provides workgroup statistics, silent monitoring and barge-in features.



Basic CallRouter - a call handling tool that uses the AltiAdmin Auto Attendant and the AltiAPI Data Directed Routing features to match incoming trunk call data against customer records that you build using the Call Router GUI. **In OE 4.5, the Advanced CallRouter license** gives you additional features including dynamic searching of DSN data to match against incoming call data, and workgroup call queue announcements.

- **CDR Search** - allows administrators to search CDR files for records that meet selected criteria, and allows workgroup supervisors to search both CDR files and workgroup CDR statistics. **In OE 4.5, the following enhancements have been made:**

CDR Search has been redesigned to provide a separate interface that captures workgroup statistics from the real-time monitoring function used in the AltiSupervisor client application. New settings in AltiAdmin let you specify time intervals for saving RTM data.

All calls are logged, including station-to-station calls, access to voice mailbox, and transferred calls.

Results windows offer data sorting.

Storage is improved; CDR data can be saved to multiple smaller files, instead of one large file.



•**NOVO Recording Module** - allows for on demand recording, continuous recording, recording through AltiAgent and AltiSupervisor, playback from AltiAgent, AltiSupervisor, and NOVO client.

Optional Kits



•**SDK 4.5 Tool Kit** - offers a complete set of tools including APIs, documentation and sample programs, to enable a developer to begin programming rapidly and efficiently. The SD 4.5 Tool Kit package includes:

- Self-installing CD-ROM containing AltiGen SDK software
- Basic Call Control Server License
- Real Time Monitoring (RTM) Server Licence
- Data Directed Routing (DDR) Server License

The same Tool Kit CD-ROM also includes two optional API products, which will be licensed per server:

- Application Programming Control (APC) Server License
- Voice Recording (VR) Server License

System Requirements

Hardware Requirements

AltiServ hardware requirements depend on the number of extensions (lines) and trunks your site requires. Refer to Table 4 on page 66 for AltiServ platform selection.

System Key Requirement

AltiWare OE 4.5 (and higher) is integrated with a system key, a hardware security device that allows the software to run **ONLY** when that system key is attached to the parallel or USB port of the server that OE is running on. The system key is **required** for initial installation, software upgrade process, and upon system reboot.

One pre-assigned, DB25 parallel port system key is included with every copy of AltiWare OE 4.5 (upgrade or original). Each system key has a unique key designated for a particular AltiWare software package - system keys cannot be shared among systems. System keys are also available in USB form factor. USB system keys must be special ordered.

Selecting the AltiServ Platform

In order to maintain your AltiServ system integrity and plan for future site expansion, you should take into consideration the following points before selecting the AltiServ platform:

- Reliability
- Expandability
- System performance

Microsoft Windows 2000 and NT Support

The AltiServ platform can be installed on a Microsoft Windows NT 4.0 (Service Pack 6a or higher) or a Microsoft Windows 2000 operating system. See “Installing AltiWare OE on Windows 2000” on page 72 for more information.

Minimum System Requirements

To read the AltiAdmin online help, you must have a 4.0 or higher browser.

To accommodate Quantum and Triton telephony boards with AltiWare software, AltiServ requires the following minimum system configuration:

- IBM/PC compatible system with adequate number of full-size ISA and PCI slots.
- Microsoft Windows NT Server 4.0 with Service Pack 6a (or higher) installed or Microsoft Windows 2000 Server.
- Microsoft Internet Information Services (version 5 or higher for NT, version 3 or higher for Windows 2000 [web server software that is supplied with Windows]) must be installed prior to installing AltiWare. This is necessary if you want AltiReach, the web-based call handling application, can run.
- Channel Service Unit for T1/PRI.

Hardware selection may have to be adjusted based on the following variables:

- The number of AltiGen telephony boards required
- The maximum AltiServ extension and trunk traffic anticipated
- The number of simultaneous client software connections

Table 5, “Individual Board Power Requirements,” on page 66 shows the AltiServ system requirements guidelines depending on the number of AltiGen boards that will be installed.

Proper Grounding and Loop Current

Proper **grounding** is essential for any PBX system. **This is a simple but very important step and is highly recommended.** Run a wire from the server chassis to earth ground. Don’t wait for a problem to arise before taking this step. Make sure this is one of the first things you do before turning the AltiGen system on.

Also, check the **loop current** on incoming trunks before connecting to any AltiGen boards. The desired loop current measurement is 25mA–28mA. This is another essential step to ensure proper operation of AltiGen systems. For more information on loop current issues, please refer to the toolbox in the **tech support** section of AltiGen’s web site at http://www.altigen.com/IT_Corner.html.

Uninterruptible Power Supply (UPS)

Using a UPS prevents power fluctuations and surges on power sources from utilities. Windows NT files can be corrupted as a result of power failure or improper system shutdown.

Caution: Corrupted files may not be repairable and may require re-installation of Windows NT and AltiWare. To protect your system from surges and power outages, it is strongly recommended that an adequate UPS (providing between 600VA and 1000VA) and power surge protector is used with the system.

Operating Environment

Before you set up and use the system, consider the environment in which the system will reside:

- Choose a work surface large enough to accommodate the entire system.
- Use a flat, stable work surface with enough space around it for proper air circulation. For proper heat dissipation, a fan is recommended in front of the AltiGen telephony boards to ensure sufficient air flow. Be sure the fan filter is clean and does not block the air flow.

The following table contains the operating specifications for the AltiGen telephony board.

Table 1. AltiGen Board Operating Environmentals

Description	Specification
Operating Temperature	0° to + 50° C
Storage Temperature	-20° to +70° C
Relative Humidity	10% to 80% non-condensing

AltiGen Telephony Boards

AltiGen telephony boards are installed into the AltiServ motherboard expansion slots or can be used individually as a third-party developer application platform. To obtain maximum performance reliability and long-term, fault-free operation, you must maintain power and environmental conditions specified at the end of this section.

Functional Specifications

Quantum Board

The Quantum telephony board has the following functional characteristics:

- MVIP compatible
- 256 Port Non-Blocking Switch Matrix
- Audio Peripheral Input & Output
- Jumper Free Configuration
- On-Board Telephony Power Supply for Quantum D Board
- Automatic Power Failure Transfer
- ISA Bus

Triton Analog Station Board

The Triton Analog Station telephony board has the following functional characteristics:

- MVIP Compatible
- 256 Port Non-Blocking Switch Matrix
- Jumper Free Configuration
- PCI Bus
- Compliant with EIA464

Note: When the board is configured for audio input, the first port cannot be used for an extension.

Triton Analog Trunk Board

The Triton Analog Trunk board has the following functional characteristics:

- MVIP-compatible
- 256 Port Nonblocking Switch Matrix
- Jumper-free Configuration
- 32-bit, 5v PCI Bus
- Compliant with EIA464

Triton VoIP Board

The Triton VoIP telephony board has the following functional characteristics:

- MVIP-compatible
- 256 Port Full-Duplex Switch Matrix
- Jumper Free Configuration
- PCI Bus

Triton T1/PRI Board

The Triton T1/PRI telephony board, which supports either T1 or PRI through software configuration, has the following functional characteristics:

- MVIP Compatible
- 256 Port Non-Blocking Switch Matrix
- Jumper Free Configuration
- PCI Bus

Triton Resource Board

The Triton Resource board has the following functional characteristics:

- MVIP Compatible
- Jumper Free Configuration
- 12 ports for silent monitoring and barge-in
- PCI Bus

AltiGen Board Installation

For instructions on how to install Triton and Quantum boards, please refer to the *Quick Installation Guide*, which is provided with every AltiGen board package.

TritonDef.inf

When a new PCI board is installed in a Windows 2000 system, the OS will detect the board and ask for a driver. The driver file for the boards (TritonDef.inf) can be found in the following locations:

- *Before installing AltiWare OE:* on the root directory of the AltiWare OE CD-ROM; this file will be installed when you install the software.
- *After installing AltiWare OE:* in the \AltiServ\SP directory on your hard drive.

AltiGen Board Options

Table 2 lists the AltiGen telephony board modules. This selection allows you to optimize your system based on the trunk/extension mix required at your site.

Table 2. AltiGen Telephony Board Options

Board	Model Number	Description
Quantum	ALTI-CD0408UD-SPH001	4 trunks and 8 extensions
Quantum	ALTI-CD0804UD-SPH001	8 trunks and 4 extensions
Quantum	ALTI-CD0012UD-SPH001	12 extensions
Quantum	ALTI-DID0408UD-SPH001	4 DID trunks and 8 extensions
Triton	ALTI-TTAS-12	12 extensions (stations)
Triton	ALTI-TTIP-4	4 VoIP trunks or extensions
Triton	ALTI-TTIP-8	12 or 30 VoIP trunks or extensions*
Triton	ALTI-TIE1	1 T1, 1 E1 or 1 PRI
Triton	ALTI-TTRS	12 ports for supervisor monitoring
Triton	ALTI-TTAT-12GS	12 trunks, ground start/loop start
Triton	ALTI-TTAT-12	12 trunks, loop start only

* When you upgrade to AltiWare OE 4.5, all 8-port boards are automatically upgraded to 12-port boards. With a 30-port upgrade license, the 12-port board can be upgraded to a 30-port board (one board upgrade per license). The original ports retain their configurations, but you must configure the new ports if you want to use them.

System Limitations

Note the following limitations for board installation and Triton VoIP board and port combinations.

Table 3. Board Installation

Board Type	Maximum in a System	Board ID Range	Total Ports
Triton VoIP 4-port	6	0-5	24
Triton VoIP 12-port	6	0-5	72
Triton VoIP 30-port	2	0-5	60
TOTAL Triton VoIP boards	6		78 max in one system, via any combination of boards that complies with the system limitations shown here
Triton Analog Trunk	16	0-15	
Triton Analog Extension	16	0-15	
Quantum	16	0-15	
Triton T1/PRI	6	0-5	
Triton Resource	2	0-15	
TOTAL T1/PRI, VoIP, and Resource Combined	10		

Recommended Altiserv System Configurations*

Table 4. System Selection Guidelines

Number of Quantum or Triton Boards per System	CPU Type	Available Memory	Hard Disk Controller	Power Supply	5V Requirement	12V Requirement
1-3	333 MHz	128 MB	IDE/SCSI	Single 300W	15A	6A or better
4-6	700 MHz	256 MB	IDE ATA-100/SCSI	Single 400W or Dual 400W load sharing recommended	20A	16A
7-16	850+ MHz	512 MB	IDE ATA-100/SCSI	Dual 400W with load sharing required	40A	20A

*Individual requirements may vary depending on particular applications. Please contact Altigen Sales Engineering or Technical Support for assistance on selecting the most appropriate system configuration for your installation.

Power Requirements

The power requirements are as follows for *each* individual board:

Table 5. Individual Board Power Requirements

Board	5V	12V	Slot Type
Quantum	1.6	1.4A	ISA
Triton Analog Station	1.6	1A*	PCI
Triton Analog Trunk	1.6	0.25A	PCI
Triton VoIP	1.6	0	PCI
Triton T1/PRI	1.6	0	PCI
Triton Resource	1.6	0	PCI

*1A@12V is provided by power connector.

Operating Environment

Before you set up and use the system, consider the environment in which the system will reside:

- Choose a work surface large enough to accommodate the entire system.
- Use a flat, stable work surface with enough space around it for proper air circulation. For proper heat dissipation, a fan is recommended in front of the AltiGen telephony boards to ensure sufficient air flow. Be sure the fan filter is clean and does not block the air flow.

The following table contains the operating specifications for the AltiGen telephony board.

Description	Specification
Operating Temperature	0° to + 50° C
Storage Temperature	-20° to +70° C
Relative Humidity	10% to 80% non-condensing

Heat Factor

Internal system temperature must not exceed the specified operating temperature. If more than two AltiGen telephony boards are installed in the system, then additional cooling fans are suggested. These fans need to effectively reduce heat and increase air flow to the AltiGen telephony boards to ensure system reliability.

Installing a Cooling Fan

If more than two AltiGen telephony boards are installed in the AltiServ system, then an additional cooling fan will be required. This fan needs to effectively reduce heat and increase air flow to the AltiGen telephony boards to ensure system dependability and reliability. To install a cooling fan into the AltiServ system, read the instructions included with the fan unit.

Software Installation

The AltiWare OE software is provided on a CD-ROM and contains the following components or folders:

- **AltiWare OE.** Contains the AltiWare Administrator as well as the switching service, SMTP/POP3 server, messaging agent, Exchange Integration, AltiBackup, AltiGatekeeper, AltiWeb that can be installed on any Windows NT Server with Service Pack 6a (or higher) or on Window 2000 Server.
- **AltiAdmin.** Contains the AltiWare Administrator that can be installed on any Windows NT with Service Pack 6a (or higher) or Windows 2000 on the LAN to control the AltiServ system(s).
- **CDR.** Contains the CDR Search Client that allows you to search a Call Data Reporting database, along with documentation and external logger service.
- **Documentation.** Contains the AltiWare OE *System Installation and Administration Manual* and the *AltiView and AltiServ User Guide* in the Adobe Acrobat PDF format.
- **Reader.** Contains the Adobe® Acrobat® Reader executable.
- **Readme.txt.** Contains late breaking information about AltiWare OE. **Please be sure to take a moment to read this brief file, which contains very important information you need to be aware of before you install AltiWare OE.**
- **TAPI Gateway.** Contains the TAPI Proxy Server and TAPI Service Provider that allow you to use AltiGen's AltiLinkPlus to create TAPI applications for your AltiWare configuration.
- **Tools.** Contains useful tools for testing and diagnosing your AltiWare configuration.

AltiWare as an NT Service

AltiWare components such as the switching, messaging agent, and AltiBackup are NT services that are automatically launched when AltiWare OE is installed and the AltiServ system is restarted. Benefits of AltiWare as an NT service:

- The AltiWare Administrator user interface does not have to be tied to the switching service so that if there is a problem with the user interface, the switching service is not affected.
- **Remote** administration is possible through **AltiAdmin**.

Important: *Do not tamper with the startup settings* of AltiGen services in the Services applet of the Control Panel. Only the AltiGen Switching Service should be set to Automatic; all other AltiGen services should be set to Manual.

Preparing to Install AltiWare OE

The following is a step-by-step procedure for installing or upgrading the AltiWare OE software from the AltiWare OE Release 4.5 CD-ROM.

It should take about 15 to 20 minutes to install the AltiWare OE software program. Before you begin installation, however, please note the following:

- **Backup prior to install.** Before upgrading your system from AltiWare Release 3.5 or above, you should back up all the configuration information to a different location, such as the network drive. (You can do this by using the backup utility OR by copying the contents of the `\altiserv\db`, `\altiserv\Phrases\LangCustom`, and `\postoffice` folders to a backup location.) This backup information is also required when rolling back to prior AltiWare versions.
- **NT Service Pack 6a, Windows 2000 Server** (or higher) is required and must be installed **before** AltiWare OE 4.5 can be installed or upgraded.
- **User Account.** During installation, a user account with local admin right is created automatically to run AltiWare services. Do **not** delete or modify this account. You may change its password through installation. The account name is in the form:
(*user name: AltiGen_<servername>*)

- **Third party applications.** AltiWare OE must be installed before any third party applications on a Windows NT with Service Pack 6a (or higher) or Windows 2000 system. Contact your third party application vendor(s) to find out if an upgrade is required for their product to work with the AltiWare OE release you are about to install.
- **Installing over old versions.** If AltiWare 3.5X or 4.X is installed, there is *no need to uninstall it* before installing AltiWare OE 4.5.
If AltiWare 2.x or 3.0 is installed, first upgrade to 3.5, then upgrade to 4.5.

Firewall Considerations

If you are using a firewall in the AltiWare OE 4.5 environment, the following are the network ports used:

Client	Server	TCP	UDP
AltiAdmin ^a	AltiWare DCOM	135	135
AltiConsole	AltiLink +	10025	
AltiControl	AltiLink+	10025	
AltiReach	AltiLink	10015	
AltiView/AltiAgent	AltiLink+ VM Service	10025 10028	
Supervisor	AltiLink+ Internal/External CDR Logger	10025 10027	
CDRSearch	AltiLink+ Internal/External CDR Logger	10025 10027	
TAPI Client	TAPI Gateway	10026	
VoIP H.323/H.225 VoIP Message Waiting VoIP H.245	Gatekeeper VoIP H.323/H.225 VoIP Message Waiting VoIP H.245	1720 49151 (Quicknet IP ext only) From 49152 to N ^b	1718, 1719

Client	Server	TCP	UDP
VoIP RTP	VoIP RTP		From 49152 to N ^b
Web Client	AltiLink+ NetMeeting Chat plus VoIP ports described above	10025 1720	
Polycom			Between 2222-2242 and 1718/1719

a. It is recommended that this be run only in an **intranet**.

b. $N=49152+ (62*\text{number of boards})-1$

Installing AltiWare OE on Windows 2000

- AltiWare OE 3.5 and later versions of AltiWare are supported on Windows 2000 Server.
- If installing AltiWare OE for the first time and you wish to use the software with Windows 2000, you must already be running Windows 2000 server prior to the AltiWare software installation.

Software License Activation and Registration

With AltiWare OE 4.5, a new licensing and registration process is implemented to reduce software piracy. The new licensing is based on two parts — licensing and registration.

Licensing

The new licensing has two components — a system key which is a physical device shipped with every copy of OE 4.5. This hardware key is equipped with a DB 25 connector which is designed to be connected to the parallel printer port on the AltiServ system running OE 4.5 or later releases of AltiWare. Optionally, a USB port version of the system key is available for use on systems **ONLY** equipped with a USB port. The USB system key is a special order item.

The second component are the license keys. These include, but are not limited to Station/Sessions, AltiConsole, AltiView, AltiWeb, Center and new, optional 4.5 software features such as Advance CallRouter, 30 port IP, external logger, APC, Voice Recording and Contact Advantage.

For step-by-step instructions on the licensing process, refer to page 96.

Registration

Both licensing components must be registered with AltiGen for the system to function at full, licensed capacity. This registration includes both AltiWare systems information, as well as registering dealer, installer, and end user (customer) data for each AltiGen system installed or upgraded to 4.5 or beyond.

All software must be registered, including AltiServ Office products. No AltiServ software comes out of the factory pre-registered. **All license keys must be registered to the system key and without proper registration, the system will function with only 8 extension ports enabled.** To support the new licensing and registration requirement, all copies of OE 4.5 software (new or upgrade) are shipped with a system key.

Once registered, system keys have license keys associated with them. All license keys are individually tracked and can only be registered to one system key. Individual license keys cannot be reactivated or installed on a different system once it has been registered the first time. The same license key cannot be associated with multiple systems even on the same customer site. Through registration, AltiGen tracks all licenses shipped, which licenses have been installed and registered, and which license keys are associated with each system key.

Dealer Installation ID

As part of the installation and registration process, the Dealer is associated with the customer and the system installed. To facilitate this, a new Dealer Installation ID will be provided to all dealers. This Dealer Installation ID will provide safe access to the registration system in the case where Dealers send their software and license keys direct to the customers to install. This Dealer Installation ID is a dealer-specific registration password and can be given to customers without compromising the secure access to our Authorized Dealer website and Tech Support site. The password ensures the dealer information is tracked along with customer information as part of the total system installation record. You cannot progress through registration without this new number. Current passwords, such as the dealer website password, will not work for registration

Registration Methods

There are two ways a system can be registered. These are based on the ability of the AltiServ system being installed and registered to have Internet access.

Manual Online Registration

If there is no access to the Internet from the server being installed, the Installer must go to a PC with Internet access and manually register the software. A registration tool allows the Installer to manually enter three pieces of information as part of the registration process:

1. Dealer Installation ID
2. Customer information
3. System key and associated license keys

The registration tool will validate the information and assign the license keys to the system key as a part of this online registration process.

Completion of the final step of this process generates an activation file that will be used to populate the actual system with valid registration information.

WARNING! Once a license key is associated with a system key, it cannot be reassigned to another system.

Remember that all licenses for OE 4.5 are specific for that release. For upgrades, all new licenses must be ordered and pre-4.5 licenses cannot be registered with AltWare OE 4.5

For step-by-step instructions on the manual online registration process, refer to page 104.

AltServ Online Registration

The second method for registering AltWare OE, Seat licenses and optional software features can be accomplished during installation of the system. To accomplish this, an online connection is needed to the AltServ system at the time of registration. This online registration tool automatically populates the license keys and system keys in the proper fields of installed software on the AltServ Office systems. This tool also requires the Installer to register the three pieces of information tracked on all system:

1. Dealer Installation ID
2. Customer information
3. System key and associated license keys

Completion of the final step of this process generates an activation file that will be used to populate the actual system with valid registration information.

WARNING! Once a license key is associated with a system key, it cannot be reassigned to another system.

Remember that all licenses for OE 4.5 are specific for that release. For upgrades, all new licenses must be ordered and pre-4.5 licenses cannot be registered with AltWare OE 4.5

For step-by-step instructions on the AltServ online registration process, refer to page 96.

Note: Internet Explorer 5.0 (or higher) is required for online registration.

Upgrades

Previous release software licenses will not work with AltiWare OE 4.5. OE 4.5 will require all new licenses, so during the upgrade process, it is important that all components are upgraded to OE 4.5 compatible versions. The new AltiGen upgrade is designed to ensure that the proper compatible seat licenses are provided with OE 4.5 upgrade software ordered. Other optional software, such as AltiView, AltiConsole and Center must also be upgraded to be compatible with 4.5 (4.5 compatible licenses).

For step-by-step instructions on the upgrade process, refer to page 84.

Lost Licenses

AltiGen views a registered license key as the right for the system registered under to have access to the feature. If a license key or system key is lost, it is the responsibility of the party who purchased the item. **The policy for replacing any lost software licenses or system keys is to repurchase the software.**

New Installation

Before New Installation

Note: Triton T1 Rev A1/A2 or VoIP Rev A1/A2 boards are not supported in OE 4.5. These boards must be replaced with Rev A3 or later boards.

Before you begin, have the following at hand:

- System Key
- The 20-digit software license key (located on the End User License Agreement).
- The system home area code.
- The extension length.

Note: The extension length, which is from 3–7 digits, is the number of digits for all extension numbers. All extensions in the Altiserv configuration must be the same length.

You cannot change the extension length once the first extension is configured, which is something you do later running the AltWare Setup. To change the extension after extensions are configured requires reconfiguring the entire system or deleting all the extensions already configured.

- Internet Explorer 5.0 or higher (for online registration)

To Begin New Installation

To install AltWare OE:

1. Make sure you have prepared for installation as described beginning on page 70.
2. Install the System Key on the parallel or USB port.

Caution: Do not connect the system key to any AltGen board as damage may occur to the board or the system key.

3. Login to Windows NT or Windows 2000 as a domain or local user account which has local administrator privileges.

To Begin New Installation

If your machine is a stand-alone server, you need to login as a local administrator account.

Note: If you plan to run Exchange Integration, you must have domain administrator rights.

4. Insert the AltiWare OE CD-ROM into the CD-ROM drive.
5. Select and read the Readme.txt file.
6. After reading the Readme.txt file, click on **SETUP.EXE** in the AltiWare OE folder.
7. At the Welcome page window, exit all Windows programs before continuing with the setup, then click **Next**.



8. Setup will retrieve logon information to determine if the user has corresponding privilege.
9. Setup will retrieve system key and install its driver, if applicable. If the system key is not available, you may still continue with setup. However, you cannot perform the license registration process (to activate your licenses) without the system key.



10. Setup will check AltiGen boards on your system.

Note: Setup will terminate if T1 Rev. A1/A2 or VoIP Rev. A1/A2 boards are found. These boards are not supported in OE 4.5.

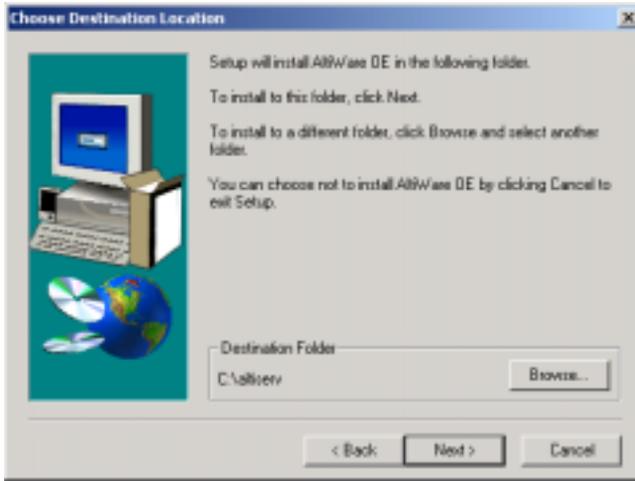
11. Setup will create a user account for AltiWare services. AltiGen recommends that you do not change the default password. If you still wish to change this, you may enter a password (no longer than 14 characters) for this account and click **Next**.



12. Setup is creating the user account.

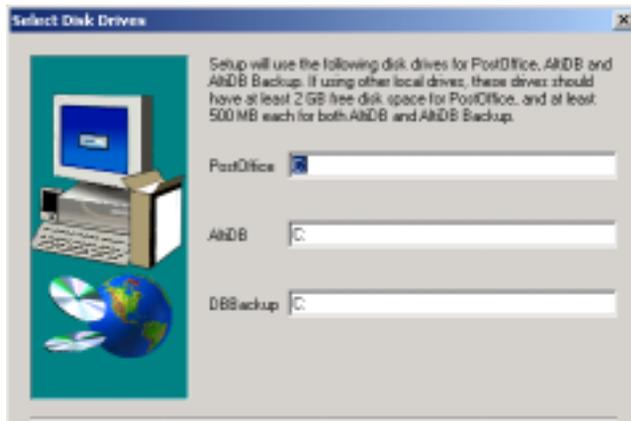
13. Setup will install AltiWare OE into a destination folder. Click **Next** to install to the folder, or click **Browse** to install to a different folder.

To Begin New Installation

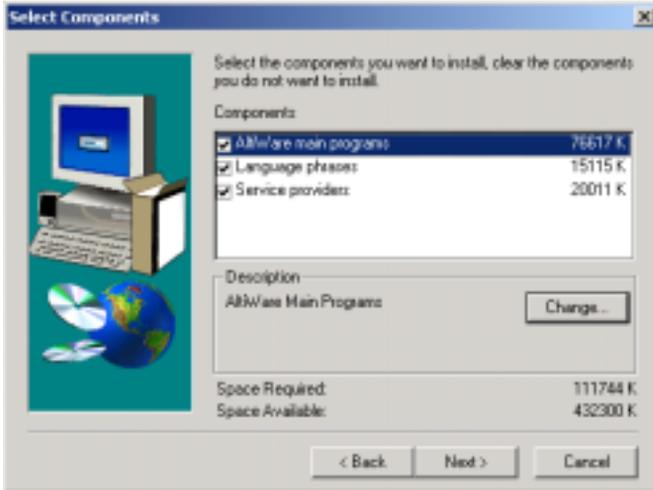


14. Setup will use the following disk drives as noted for PostOffice, AltIDB and AltIDB Backup or you may select another local drive.

Note: It is recommended that the local drive used should have at least 2GB of free space for PostOffice and 500MB each for AltIDB and AltIDB Backup.



15. Setup allows you to select the components you wish to install. By default, all components are checked, and it is recommended that you do not uncheck any items.



16. Click **Next** to have Setup begin copying the program files.



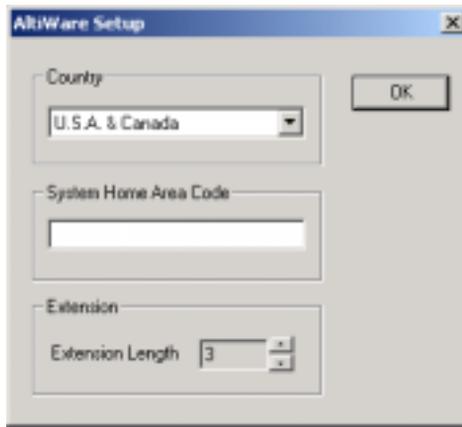
To Begin New Installation

17. Setup will perform the following:

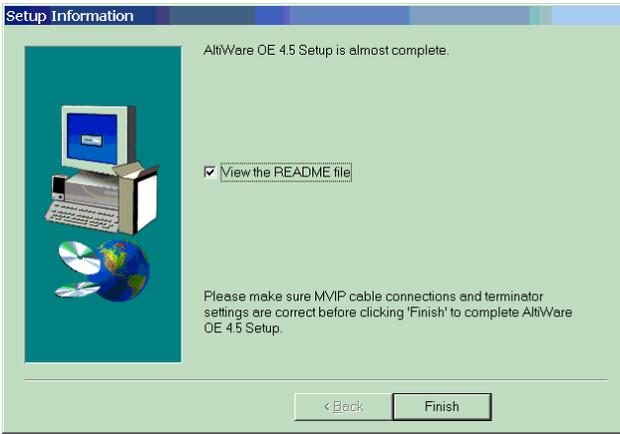
- Install Microsoft Data Access Components
- Install AltiWare Services
- Register AltiWare COM components
- Create program folder and icons
- Upgrade Altiware databases

18. Setup Window will prompt for the **Country**, **System Home Area Code** and **Extension Length**. When finished, click **OK**.

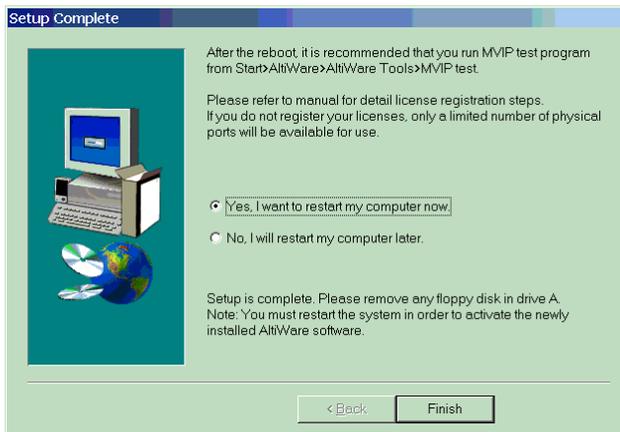
Note: Once the **Extension Length** is set and you click **OK**, you cannot change the extension length after this setup unless you re-configure the entire system or delete all the extensions already configured.



19. Setup is almost complete. Make sure the MVIP cable connections and terminator setting are correct, then click **Finish**.



20. Setup is complete. Reboot the system to finish the installation process



21. **(Recommended)** After rebooting, run the MVIP test program from Start>AltWare>AltWare Tools>MVIP test.
22. Use AltAdmin to register your licenses. Follow the steps for “Online License Registration Procedures” on page 96. **If you do not register and activate your licenses, only eight (8) physical ports will be available for use.**

Upgrading AltiWare OE

Note: Triton T1 Rev A1/A2 or VoIP Rev A1/A2 boards are not supported in OE 4.5. These boards must be replaced with Rev A3 or later boards.

Before Upgrade

Before you begin, you'll need to have the 20-digit software license key located on the back of the End User License Agreement and a System Key.

Backup Database

OE 4.5 supports direct upgrade from OE 3.5A Patch 4 or OE 4.0 only. If your system is running an earlier release, you first upgrade to OE 3.5A Patch 4 or later.

If AltiWare 3.5X or 4.X is installed, there is *no need to uninstall it* before installing AltiWare OE 4.5. If AltiWare 2.x is installed, first upgrade to 3.5, then upgrade to 4.5.

Back up all the configuration information to a different location, such as the network drive. (You can do this by using the backup utility OR by copying the contents of the `\altiserv\db\`, `\altiserv\Phrases\LangCustom`, and `\postoffice\` folders to a backup location.). To uninstall an earlier version of AltiWare, click the **Uninstall** icon in the AltiWare program group. The uninstall does not remove the AltiWare configuration and messages.

For addressing firewall considerations, refer to “Firewall Considerations” on page 71.

IP Extension Protocol Change

When upgrading from release 4.0 to 4.5, all IP extensions using static IP addressing will be defaulted to the G.711 codec. To change the codec of any IP extension, see “Setting an IP Extension” on page 224.

VoIP Board Upgrade

When you upgrade to AltiWare OE 4.5, all 8-port VoIP boards are automatically upgraded to 12-port boards. With a 30-port upgrade license, the 12-port board can be upgraded to a 30-port board (one board upgrade per license). The original ports retain their configurations, but you must configure the new ports if you want to use them.

Shutting Down the AltiGen Switching Service

Before installing this upgrade on the AltiServ system, please make sure that the AltiAdmin application and the AltiGen Switching Service are not running.

*You can shutdown the AltiGen Switching Service Com Server and the AltiAdmin application at the same time by running AltiAdmin, logging in and selecting **Services** → **Shutdown Switching**.*

Note: Stopping the **AltiGen Switching Service COM Server** will automatically stop all the auxiliary services.

These are the Windows 2000 / NT services distributed with AltiWare:

- AltiGen Switching Service COM Server
- AltiGen Messaging Service COM Server
- AltiGen SMTP Service COM Server
- AltiGen POP3 Service COM Server
- AltiGen Exchange Integration Service COM Server
- AltiGen Backup/Restore Service
- AltiGen Keep Up Service
- AltiGen Internal Logger Server

Shutting Down Switching as a Windows 2000 / NT Service

Optionally, if you're not running AltiAdmin, you can shut down the services using Windows 2000 / NT Services.

1. Do one of the following:
 - On the *Windows 2000* desktop, select **Start** → **Programs** → **Administrative Tools** → **Services**.

To Begin Upgrade

- On the *NT* desktop, Open the **Control Panel** and double-click **Services**.
2. Highlight **AltiGen Switching Service COM Server**.
 3. Stop the service.

If the status column is empty, proceed to the next step. If the status column says **Started**, double-click the listing to open the Properties dialog box, then click the **Stop** button followed by the **OK** button to close the dialog.

To Begin Upgrade

To complete the upgrade:

1. Make sure you have prepared for installation as described beginning on page 70.
2. Install the System Key on the parallel or USB port.

Caution: **Do not connect the system key to any AltiGen board as damage may occur to the board or the system key.**

3. Login to Windows NT or Windows 2000 as a domain or local user account which has local administrator privileges.

If your machine is a stand-alone server, you need to login as a local administrator account.

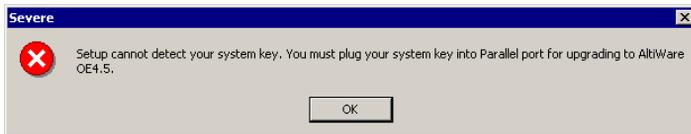
Note: If you plan to run Exchange Integration, you must have domain administrator rights.

4. Insert the AltiWare OE CD-ROM into the CD-ROM drive.
5. Select and read the Readme.txt file.
6. After reading the Readme.txt file, click on **SETUP.EXE** in the AltiWare OE folder.
7. At the Welcome page window, exit all Windows programs before continuing with the setup, then click **Next**.



8. Setup will retrieve logon information to determine if the user has corresponding privilege.
9. Setup will retrieve system key and install its driver, if applicable.

WARNING! If the system key is not available, Setup will terminate.



10. Setup will check AltiGen boards on your system.

Note: Setup will terminate if T1 Rev. A1/A2 or VoIP Rev. A1/A2 boards are found. These boards are not supported in OE 4.5.

11. Setup will check existing licenses to see if they are registered or partially registered. Depending on these conditions, Setup will proceed to either **Sub-step 1A. — No registered Licenses** or **Sub-step 1B. — Partially Activated Licenses**.

Note: OE 4.0 license keys are not compatible with OE 4.5. You need to register all OE 4.5 license keys through registration process.

To Begin Upgrade

Sub-step 1A:

No Registered Licenses - If no licenses are registered, you will see the following Installation Options window.



You may choose the following options:

- a) **Provide the activated license file** - if you select this option and click **Next**, enter the path of the “exct1” file in the License Path page, then click **Next** to proceed to Step 12.

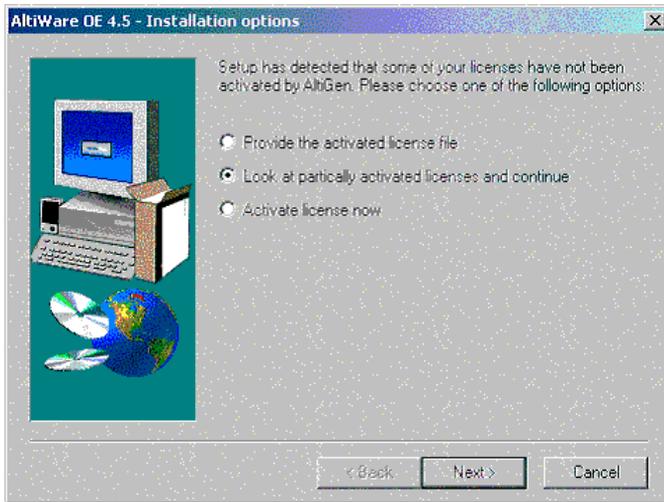


- b) **Register license now** - if you select this option and click **Next**, you will automatically launch AltWare’s License Information window. Click Online Register to activate your license(s) and follow the steps for online registration on page 98.

Sub-Step 1B:

Partial Registered Licenses - If some of your existing licenses are registered, you will see the following Installation Options window.

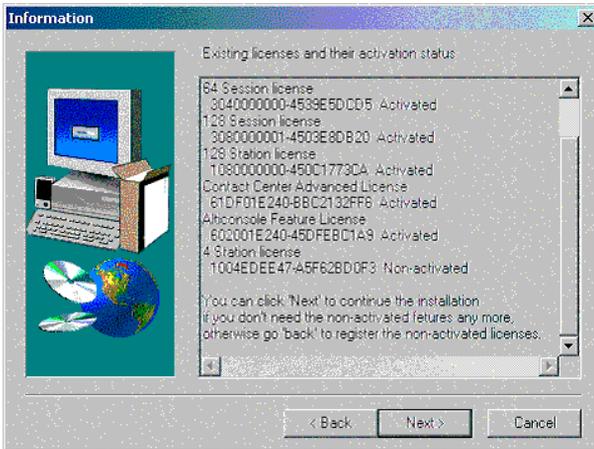
To Begin Upgrade



You may choose the following options:

- a) **Provide the activated license file** - If you select this option and click **Next**, enter the path of the “exctl” file in the License Path page, then click **Next** to proceed to Step 12.
- b) **Look at partially activated licenses and continue** - if you select this option and click **Next**, you can view your existing licenses and their activation status in the Information page, then continue upgrading with activating these licenses by following the steps for online registration on page 98.

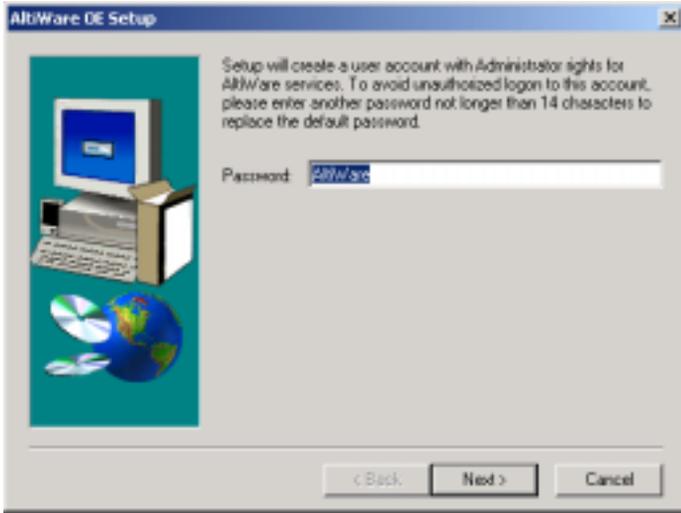
Caution: If you do not register all your licenses and continue the upgrade, some features may not function after the upgrade is complete.



c) **Activate license now** - if you select this option and click Next, you will automatically launch AltiWare's License Information window. Click Online Register to activate your license(s) and follow the steps for online registration on page 98.

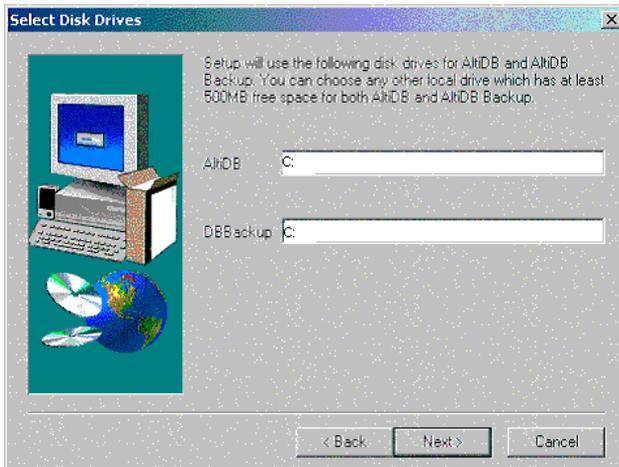
12. Setup will check service status.
13. Setup will create a user account for AltiWare services. AltiGen recommends that you do not change the default password. If you still wish to change this, you may enter a password (no longer than 14 characters) for this account and click **Next**.

To Begin Upgrade



14. Setup is creating the user account.
15. Setup will use the following disk drives as noted for AltIDB and AltIDB Backup or you may select another local drive.

Note: It is recommended that the local drive used should have at least 500MB of free space each for AltIDB and AltIDB Backup.



16. Setup allows you to select the components you wish to install. By default, all components are checked, and it is recommended that you do not uncheck any items.



17. Setup will begin copying the program files.

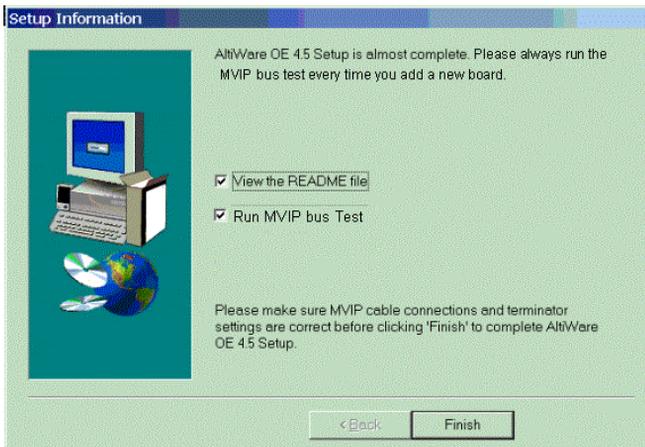


To Begin Upgrade

18. Setup will perform the following:

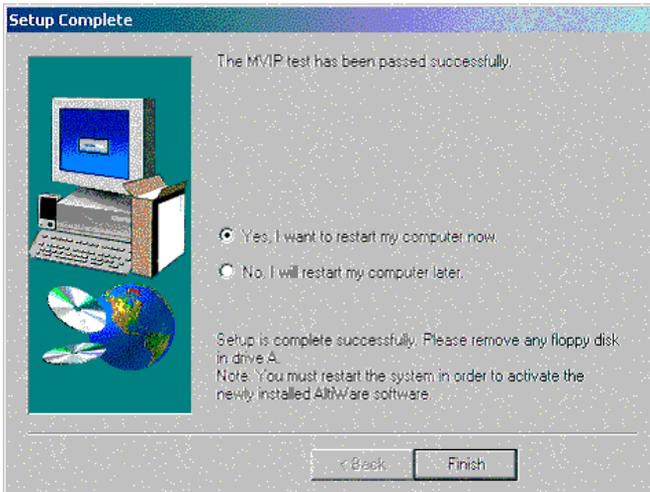
- Install Microsoft Data Access Components
- Install AltiWare Services
- Register AltiWare COM components
- Create program folder and icons
- Upgrade Altiware databases

19. Setup is almost complete. Setup will suggest running MVIP bus test before rebooting.



If the MVIP bus test option is checked, the test will begin when you click **Finish**. You can see the pass or fail information in the MVIP Test Tool test log box.

20. Setup will complete, whether or not the MVIP test passes, if Setup cannot get the results of the MVIP test, or if the MVIP test is skipped. You can restart your computer now or later, then click **Finish** to end Setup.



21. If the MVIP test fails, it is recommended that you address the MVIP failure before you reboot the system. You can manually run the MVIP test program through Start>ALtiWare>ALtiWare Tools>MVIP test.
22. Reboot the system to finish the upgrade process.

License Activation and Registration Process

In ALtiWare OE, a software license allows you to increase the capacity for the following:

- **Physical and IP extensions.** A Quantum board can provide 4, 8, or 12 extensions (depending on the type of Quantum board) and the Triton Analog Station board provides 12 extensions. You may increase the number of software supported extensions up to the maximum available by adding station licenses. Each license you enter adds to the previous total.

Each IP extension needs a license. For example, if a user has a station in the office, a station at home, and a station at the Lake Tahoe Conference House, licenses for three stations are required.

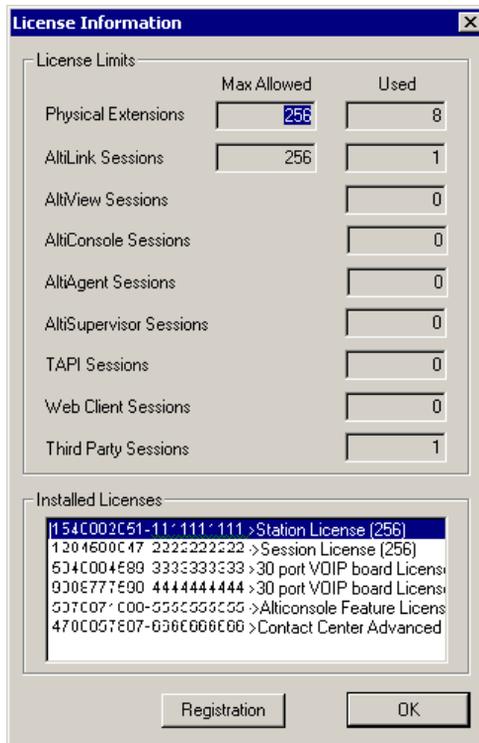
- **Sessions.** AltiWare OE includes a single session license. You may increase the number of concurrent client sessions by purchasing additional session licenses packages. Each license you enter adds to the previous total.

In AltiWare OE 4.5, the Contact Advantage Server license allows you to enable this add-on option for call center features. (For more information on the Call Center Option, refer to the *Contact Advantage and AltiWeb User Guide* shipped with the option package.)

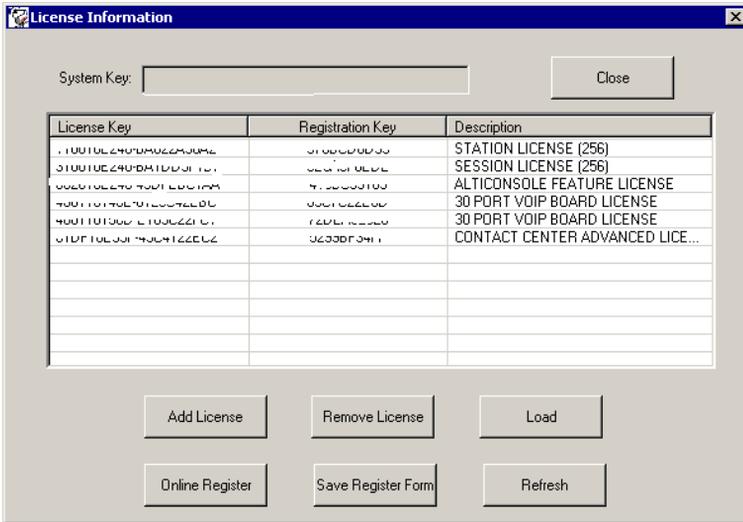
Online License Registration Procedures

To activate any license through **online registration**, follow these steps:

1. From the **About AltiWare** window in AltiAdmin, click on the **License Information** button.



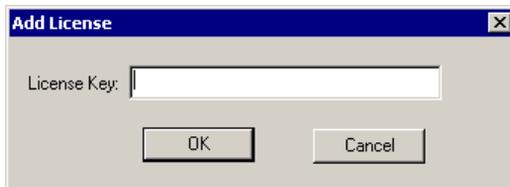
2. Click the **Registration** button to open a new **License Information** window.



3. <Optional - you may add licenses here OR during online registration. Skip to Step 5 if you wish to add licenses later.>

Click **Add License** to add the license keys that you wish to add and activate. (License keys are located on the End User License Agreement sent with every License purchase.)

4. In the **License Key** field of the **Add License** pop-up window, enter the license key and click **OK**.



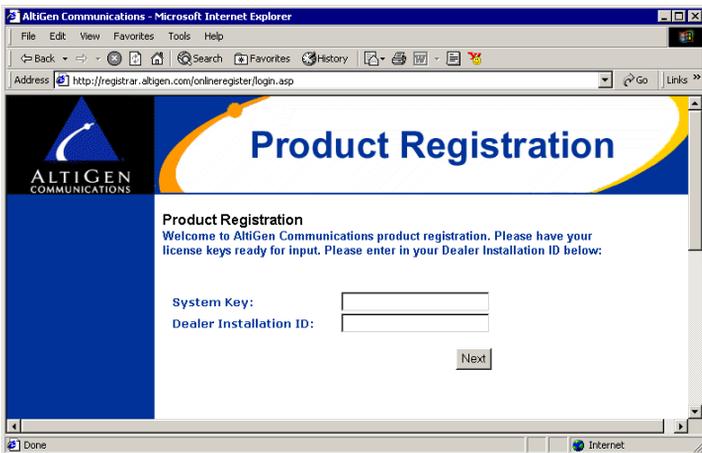
Continue adding licenses with the **Add License** button until all licenses are entered.

5. Select the **Online Register** button. This automatically launches the following web page to start online registration.

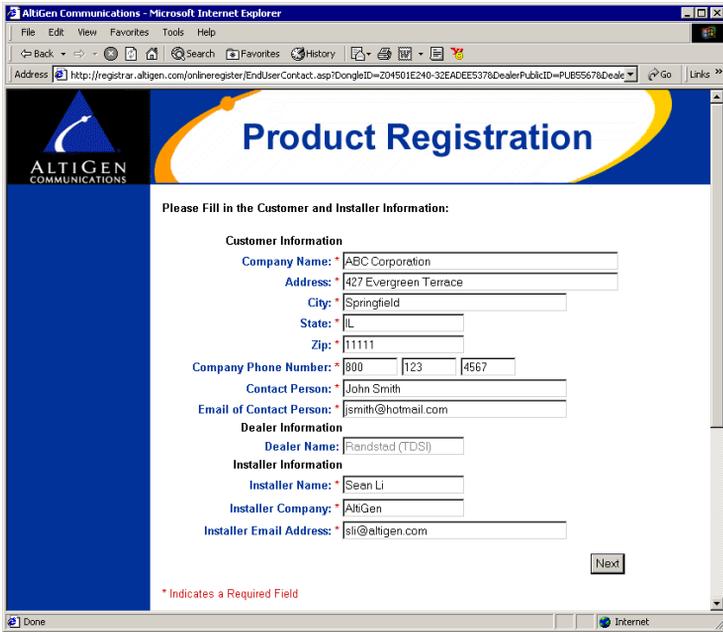
License Activation and Registration Process



6. Click the **Proceed to Online Registration** button.



7. The next web page allows for inputting System and Dealer Installation ID. The **System Key** field is automatically loaded. (This information is located on the End User License Agreement). In the **Dealer Installation ID** field, enter the ID number assigned to your Dealer. This information can be obtained by contacting either your local authorized AltiGen Dealer or AltiGen Technical Support.
Click **Next** when finished.
8. The next web page allows for inputting of Customer and Installer information.



For the Customer Information and Installer Information sections, fill in all fields (required) and click **Next** when finished.

9. The next web page allows for entering of new License Keys or for adding any additional licenses.

License Activation and Registration Process

Altigen Communications - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://registrar.altigen.com/online/register/RegistrarForm.asp>

Product Registration

Please Fill in the End User's Software License Key Information:

AltWare OE:

System Key*

Software License Key	Description
1: * f010000000-453E1AC0D9	16 Station License
2: * f009000000-410AD73935	8 Station License
3: * 5FFF01E240-60D54724C4	Invalid
4: * 0004000001-410F2B37FA	4 Session License
5: * 7FFF01E240-60D6B8CDE9	Invalid
6: * 0008000001-410AE8D7F9	8 Session License

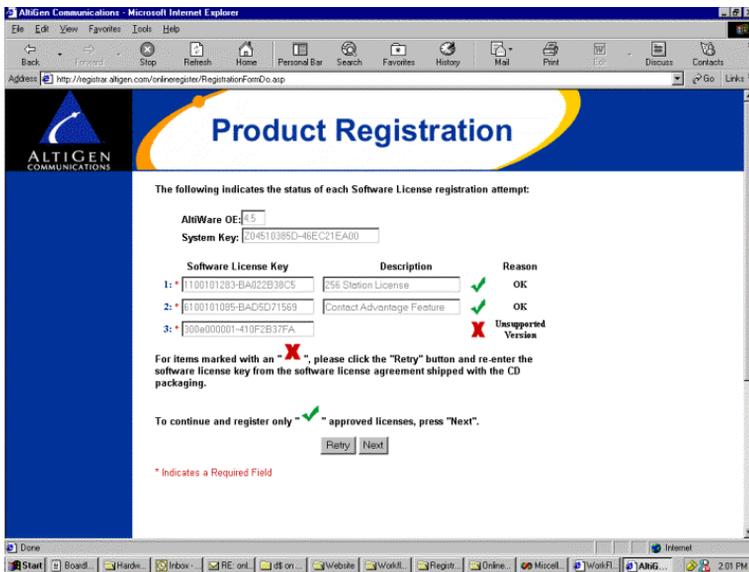
If the license keys listed are complete, submit page and continue. To add additional licenses, click the "Add More Keys" button.

* Indicates a Required Field

Click **Add More Keys** to add more licenses, or click **Next** to register these licenses.

Note: All keys are case sensitive.

- The next web page displays the licenses which have been activated and are about to be registered.



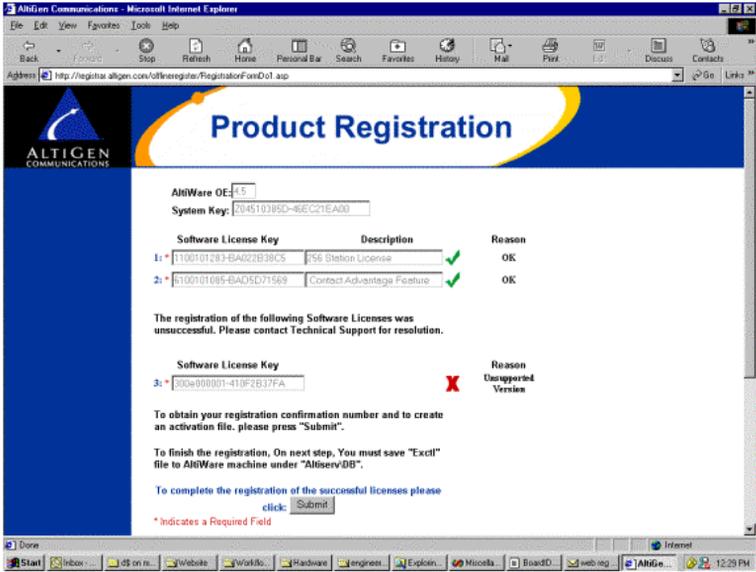
- Approved licenses are indicated by a green check mark and will display a description next to the approved license.
- Invalid licenses are indicated by a red X mark.
 - Possible reasons for “invalid” licenses include:
 - a) obsolete licenses (such as unsupported OE 3.5 or 4.0 licenses)
 - b) not enough digits in license number
 - c) wrong license number
 - d) license number registered to another system key

You may attempt up to three retries to validate licenses. If you click Retry on the fourth attempt, the Web Registration will not continue and you must begin the Web Registration process again from Step 5.

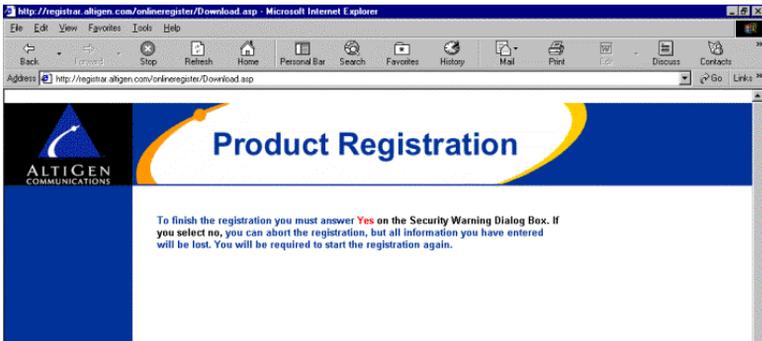
Click **Next** to continue.

11. The next web page displays the final results of the license activation to show which licenses have been validated. Click **Submit** to continue.

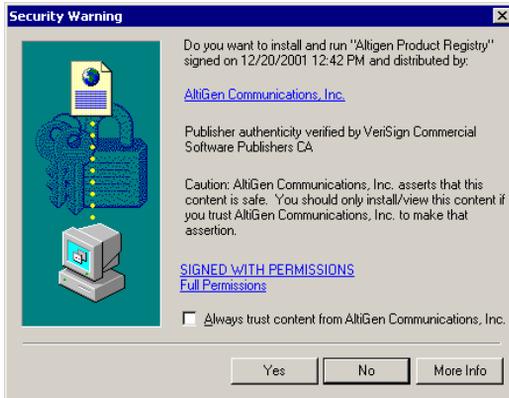
License Activation and Registration Process



- The next web page continues the registration by initiating a product registry program.

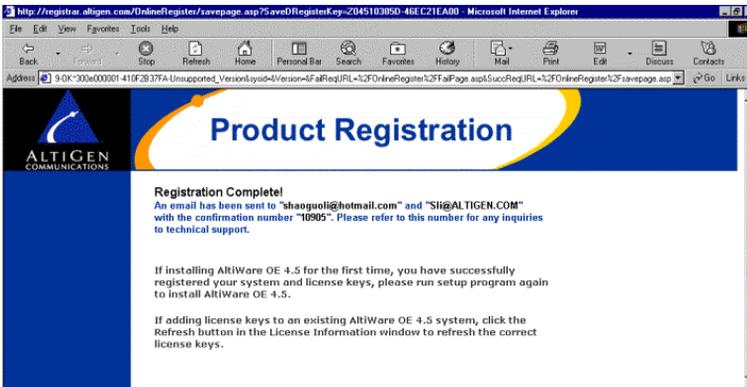


At the Security Warning prompt, click **Yes** to install and run the program. If you click No or close this box, the Web Registration will not continue and you must begin the Web Registration process again from Step 5.



Setup will create or update an "exctl" file in \altiserv\db\.

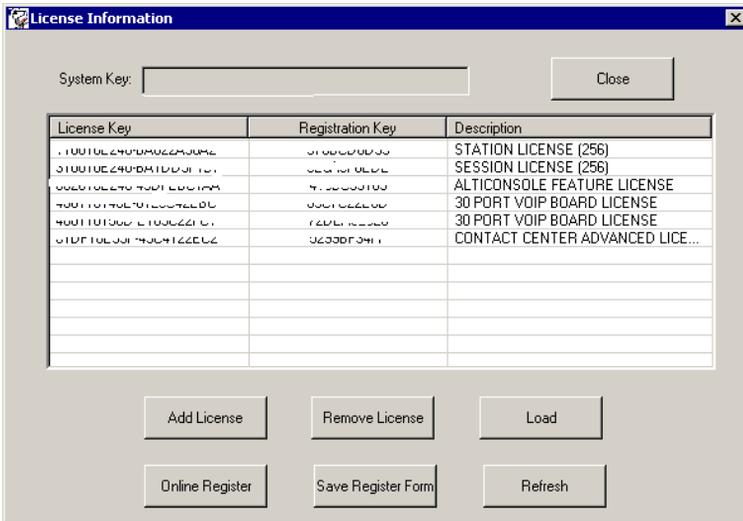
13. The final web page displays a verification notice and number, confirming that an email of the registration process results has been sent to the customer and installer. Save the email for future reference. You may close this web page.



14. Return to the AltWare system. In the **License Information** window, click the **Refresh** button.



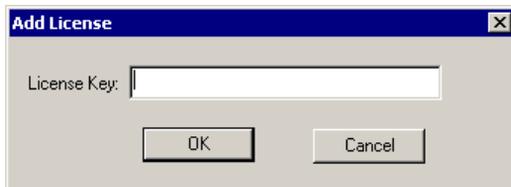
Software Installation



3. <Optional - you may add licenses here OR during online registration. Skip to Step 5 if you wish to add licenses later.>

Click **Add License** to add the license keys that you wish to add and activate. (License keys are located on the End User License Agreement sent with every License purchase.)

4. In the **License Key** field of the **Add License** pop-up window, enter the license key and click **OK**.



Continue adding licenses with the **Add License** button until all licenses are entered.

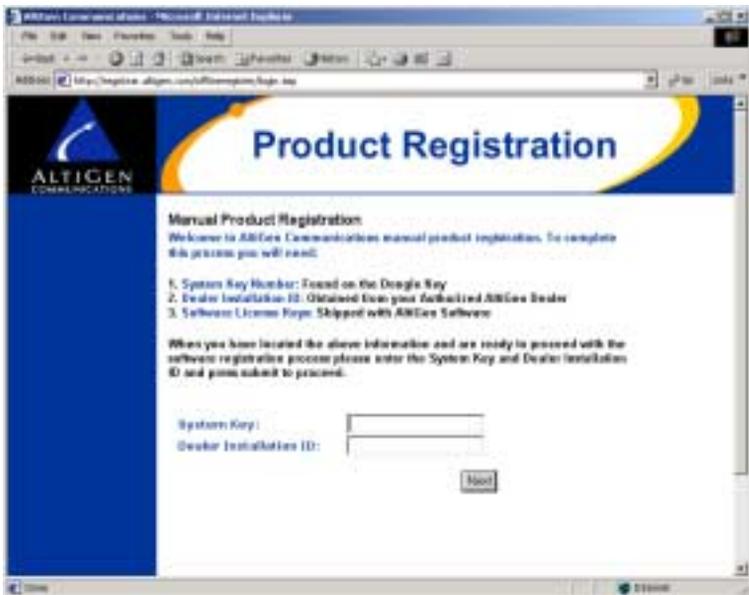
5. Click **Save Register Form** to save registration information as a **Register.htm** file and copy to a floppy disk, or a shared file location which can be accessed by the destination system.
6. From any PC with an Internet connection, open the **Register.htm** file.

License Activation and Registration Process

7. On the AltiGen Software License Registration web page, click the **Proceed to Online Registration**.

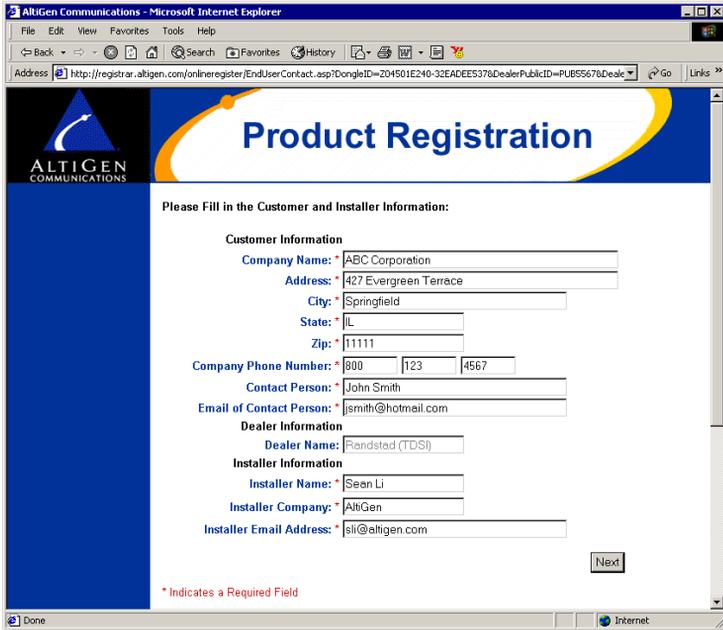


8. The next web page allows for inputting System and Dealer Installation ID. In the **System Key** field, enter your System Key (located on the End User License Agreement). In the **Dealer Installation ID** field, enter the ID number assigned to your Dealer. This information can be obtained by contacting either your local authorized AltiGen Dealer or AltiGen Technical Support.



Click **Next** when finished.

9. The next web page allows for inputting of Customer and Installer information.



For the Customer Information and Installer Information sections, fill in all fields (required) and click **Next** when finished.

10. The next web page allows for entering of new License Keys or for adding any additional licenses.

License Activation and Registration Process

AltiGen Communications - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://registrar.altigen.com/online/register/RegistrarForm.asp

Product Registration

Please Fill in the End User's Software License Key Information:

AltWare OE: 4.5

System Key * 204501E240-32EADDE537

	Software License Key	Description
1 *	010000000-453E1AC0D9	16 Station License
2 *	009000000-410AD73935	8 Station License
3 *	5FFF01E240-60D54724C4	Invalid
4 *	000400001-410F2B37FA	4 Session License
5 *	7FFF01E240-60D6B8CDE9	Invalid
6 *	000800001-410AE8D7F9	8 Session License

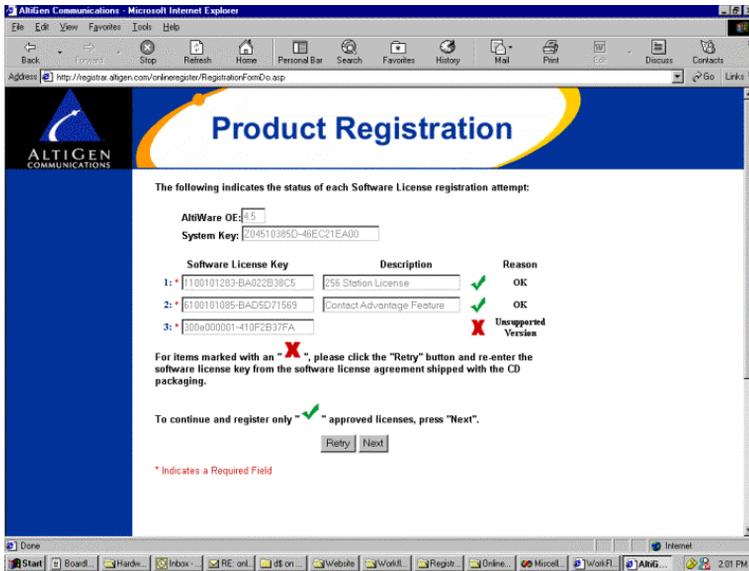
If the license keys listed are complete, submit page and continue. To add additional licenses, click the "Add More Keys" button.

Add More Keys Next

* Indicates a Required Field

Click **Add More Keys** to add more licenses, or click **Next** to register these licenses.

11. The next web page displays the licenses which have been activated and are about to be registered.



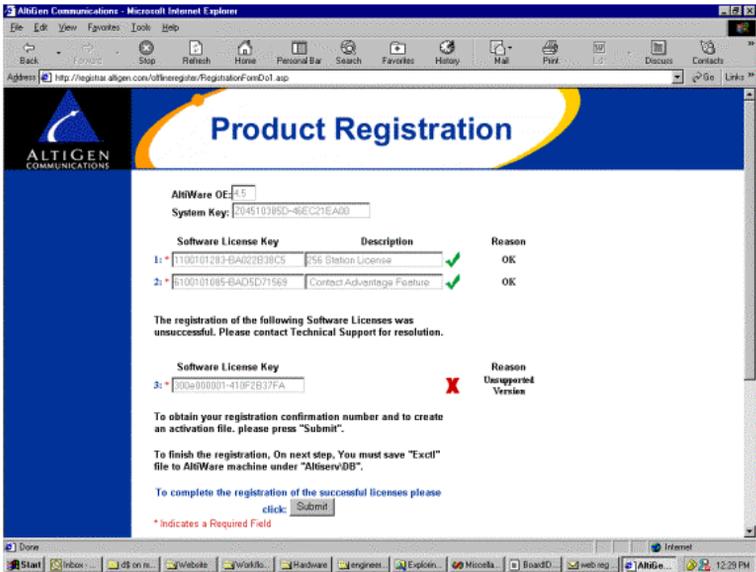
- Approved licenses are indicated by a green check mark and will display a description next to the approved license.
- Invalid licenses are indicated by a red X mark.
 - Possible reasons for “invalid” licenses include
 - a) obsolete licenses (such as unsupported OE 3.5 or 4.0 licenses)
 - b) not enough digits in license number
 - c) wrong license number
 - d) license number registered to another system key

You may attempt up to three retries to validate licenses. If you click Retry on the fourth attempt, the Web Registration will not continue and you must begin the Web Registration process again from Step 5.

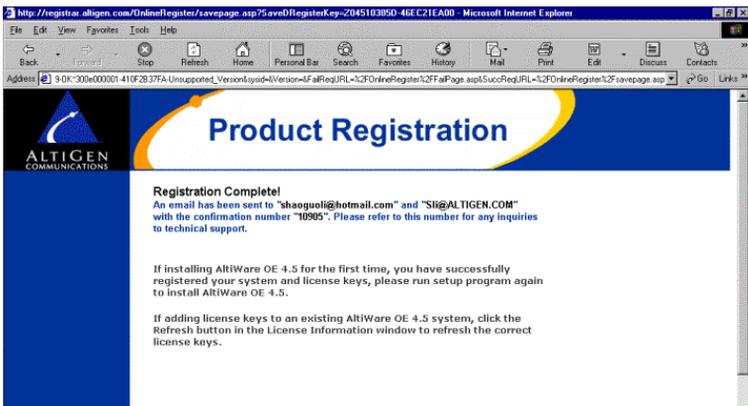
Click **Next** to continue.

12. The next web page displays the final results of the license activation to show which licenses have been validated. Click **Submit** to continue.

License Activation and Registration Process



13. The next web page continues the registration by initiating a product registry program.
14. At the end of the Web Registration, save the **exctl** file to a floppy disk.



15. Return to the Altiserv machine. In the **License Information** window, click the **Load** button and to load the **exctl** file from floppy into the Altiserv system.

16. Click **Refresh** to update the **License Information** window. Any newly activated licenses through web registration will appear in the license field.

Offline Registration Procedures

To register licenses through the Web (without AltiAdmin), go to the following web URL: <http://registrar.altigen.com/offlineregister/login.asp>. Then follow the online registration process (page 105) beginning with **Step 6**.

Windows Emergency Repair Disk

After installing AltiWare, you should create the Windows Emergency Repair Disk, even if you have previously created a repair disk. This repair disk is needed to repair any corrupted Windows files.

- To create the disk on NT, choose **Run** from the Windows NT **Start** button and type **rdisk** at the prompt.
- For Windows 2000, use the **Accessories** → **System Tools** → **Backup** utility program and select **Create an Emergency Repair Disk** from the **Tools** menu.

Installing AltiAdmin on Remote Systems

AltiAdmin contains the **AltiWare Administrator** application that can be installed on any **Windows NT Server or Workstation 4.0 system with Service Pack 6a** (or higher), or **Windows 2000** and a network connection. *AltiAdmin does not support Windows 95.*

When you install AltiAdmin on a machine that is not an AltiServ server, it does not contain the switching, SMTP/POP3 server, messaging agent, AltiBackup, Exchange integration services that are included in the full AltiWare OE installation described above. Remote AltiAdmin *does not utilize* the System Data Management or Shutdown Switching Service functions on the AltiServ system.

AltiAdmin provides the ability to manage the AltiServ system from a remote client system on the LAN. If there is no firewall on the LAN where AltiServ resides, AltiAdmin can be installed and used to manage AltiServ over the Internet from a remote site as well.

To install AltiAdmin on a non-AltiServ PC for the first time:

1. Insert the AltiWare CD-ROM into the appropriate drive.
2. Run **SETUP.EXE** from the **AltiAdmin** folder.
3. Follow the instructions on the window.
4. To open AltiWare Administrator, refer to “Running AltiWare Administrator” on page 112.

Running AltiWare Administrator

To run AltiWare Administrator:

1. Choose **Programs** from the Windows NT **Start** button and click on **AltiWare Administrator** in the AltiWare or AltiAdmin folder.
2. If you are opening **AltiAdmin**, enter the server name when prompted. If you are logging into AltiAdmin at a remote site to administer AltiServ over the Internet, enter the **IP address** (e.g. 100.100.100.100) of the AltiServ system when prompted for the server name. Multiple AltiServ systems can be managed at a single location with an AltiAdmin open for each AltiServ system.
3. Login by Selecting the **Services** → **Login** or clicking the **Login** icon—the left-most icon in the Toolbar. The Login Password window prompts you to enter the password and click **OK**. The system default password is “22222.” **You should change the system password as soon as possible to ensure system security.** For more information, refer to “Logging in for the First Time” on page 117.



Once you are logged in, you can configure the AltiServ system.

Shutting Down AltiServ when Changing or Adding Hardware

When you add or change hardware, follow these procedures to back up and shut down the AltiServ system. The best time to do this is during off hours—the system should be idle.

1. Using the AltiAdmin application System Data Management function, backup the AltiServ data, messages, and custom files using the procedures in the chapter on “System Data Management.”
2. In AltiAdmin, shutdown the AltiGen Switching Service and exit AltiAdmin, as described in “Shutting Down Switching as a Windows 2000 / NT Service” on page 85.
3. Shut down and power down the Windows 2000 / NT system using the standard Windows shutdown procedure.
4. After adding or removed hardware, it is recommended to run MVIP test from Start>AltiWare>AltiWare Tools>MVIP test.

Transferring the AltiServ to Another Server Chassis

If you transfer the AltiServ system to another platform—for example, to upgrade or expand your system or for other reasons—you need to backup the database, move the telephony boards, install the AltiWare software, and restore the database to the new platform.

The new platform should have access via a LAN to the system to which you backed up the files from the old platform.

To transfer the system to another platform:

1. Back up the system files, then shut down and unplug the AltiServ system computer, following the “Shutting Down AltiServ when Changing or Adding Hardware” on page 112.
2. Remove the computer cover, following the computer manual instructions.
3. Disconnect the MVIP internal data cable.
4. Label and disconnect the DB-25 to 50 pin Telco cable(s) from the board I/O connectors.
5. Remove the telephony board(s) from the original system.
6. Install the board(s) into the new system.
7. Install the system key to the parallel or USB port.
8. Install the AltiWare OE software as described, beginning with “Preparing to Install AltiWare OE” on page 70.
9. Restore the AltiServ system database as follows:

- a. Run AltiAdmin and select **Services** → **System Data Management** to run the data management utility.
 - b. Click the **Restore** icon to open a dialog that allows you to choose files to restore.
 - c. Make sure all the **Component** check boxes are selected.
 - d. In the **Restore From** drop-down list, select the drive and directory to which you backed up the files in Step 1.
 - e. Click **OK** to start the restore.
 - f. Once the restore is complete, click the **Exit** icon to exit the data manager.
 - g. Shut down and exit the system by selecting **Shutdown Switching** from the **Services** menu.
10. Reboot the system, then run the MVIP test.
 11. Reboot the system.

AltiWare Uninstall

To back out the upgrade, be sure to stop all AltiWare-related services before uninstallation. To do this, run AltiAdmin, log in, and select **Shutdown Switching** from the **Services** menu.

In the event that the auxiliary services were not stopped, stop them one at a time using the **Start** → **Programs** → **Administrative Tools** → **Services** applet.

Then launch the Uninstall program by clicking the **Uninstall** AltiWare OE icon in the AltiWare program folder.

Downgrade Procedure

To downgrade, you must have been running the earlier version prior to the 4.5 installation. To downgrade to OE 3.5 or 4.0, you must have been running OE 3.5 or 4.0 prior to the 4.5 installation. If you are downgrading to 3.5, you'll also need to remove the new Triton boards and reinstall the old ones, since the new boards are designed to run with AltiWare 4.0 or higher.

Downgrading from AltiWare OE 4.0 to OE 3.5 or lower requires that you restore backed up files from the prior release. Before you begin, you should have backed up all the prior release configuration information as described for installation preparation on page 70.

To downgrade, follow these steps:

1. Stop the AltiGen services as described in “Shutting Down Switching as a Windows 2000 / NT Service” on page 85.
2. Uninstall OE AltiWare 4.5 as described on page 114.
3. If they are installed, uninstall AltiView, AltiConsole, AltiAdmin, and CDR Search, following the manual procedures for those applications.
4. Delete the following components using the **Control Panel → Add/Remove Program**:
 - AltiView VM Service
 - Quantum SP
 - Triton SP
 - Triton Analog SP
 - Triton T1/PRI SP
 - Triton VoIP SP
5. Remove the “\altiserv” directory and any subdirectories.
6. Shut down Windows NT and power down the computer.
7. Install the previously removed older Quantum/Triton boards back into the computer.
8. Reboot the computer.
9. Reinstall the previous OE and the previous version of other client/server programs such as AltiView, AltiConsole, AltiAdmin, and CDR Search.
10. Stop AltiGen Switching Services as described in “Shutting Down Switching as a Windows 2000 / NT Service” on page 85.
11. Restore your backups.
12. Reboot the computer.

Software Installation Troubleshooting

Use this table for troubleshooting error messages encountered during during software installation.

Error Message	Solution
This version of AltiWare does not support Triton T1 Rev A2 or VoIP Rev A2 boards. Please unplug these boards, then run setup again.	Unplug Triton T1 Rev A2 or VoIP Rev A2 boards, then run setup again.
Copy activation file failed.	Activation file (exctl) is not in the specified folder, is missing, or is corrupted. Make sure you select the correct file folder where the activation file is located and try again. If problem persists, you can manually copy the activation file to c:\AltiServ\db directory (if AltiServ is installed on the c: drive) and run the installation program again.
An error occurred during the move data process.	Make sure all AltiGen applications and services are stopped/closed before installing AltiWare OE.
Setup cannot detect your system key. You must plug your system key into either a parallel or USB port for upgrading to AltiWare OE 4.5.	Make sure your system key is fully inserted into your parallel or USB port prior to installing AltiWare OE. If error persists, reboot the system, then run setup again.
Setup has not detected your system key. If you proceed the installation WITHOUT the system key, only 8 physical ports will be available for use after the OE 4.5 installation.	Make sure your system key is fully inserted into your parallel or USB port prior to installing AltiWare OE.

Error Message	Solution
<p>Setup cannot append the AltiServ path because your existing system environment is too long. You must manually append the AltiServ path to your system environment path after finishing AltiServ's installation but before restarting your system. You can find the system environment path through Control Panel>System >Environment>path.</p>	<p>Manually append c:\AltiServ\exe (if AltiServ is installed on c: drive) to your system environment path (through Control Panel>System >Environment>path) after finishing AltiServ's installation but before restarting your system.</p>
<p>Unable to add AltiServ path to the system.</p>	<p>Manually append c:\AltiServ\exe (if AltiServ is installed on c: drive) to your system environment path (through Control Panel>System >Environment>path) after finishing AltiServ's installation but before restarting your system</p>
<p>Failed to upgrade AltiWare databases.</p>	<p>The previous database may be corrupted. Restore the last, known working database and try again. If error persists, contact your Authorized AltiGen Dealer.</p>

Getting Around AltAdmin

AltAdmin: the AltWare OE Administrator

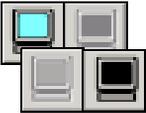
This section describes how to configure and administer the AltServ system using the AltWare Administrator system application software.

AltWare Administrator, or AltAdmin, allows you to configure sophisticated switching and messaging functions using windows that guide you through the configuration steps for each feature.

AltAdmin can be used at the AltServ system or on any other system on the LAN for remote maintenance. On a remote Windows NT or Windows 2000 client system on the LAN, AltAdmin allows control of one or more AltServ systems. System Data Management, and Stop Switching Service cannot be performed over the LAN.

Instructions for installing AltAdmin are described in “Installing AltAdmin on Remote Systems” on page 110.

Logging in for the First Time



To access AltWare functions to configure and administer the AltServ system, you must first log in as an administrator. The first time you log in, use the system default password, “22222.”

Important: To ensure system security, change the system password as soon as possible. See “Changing the Password” below.

The AltiWare Administrator Main Window

Once you run the AltiWare Administrator, the first window you see is the AltiWare Administrator main window.

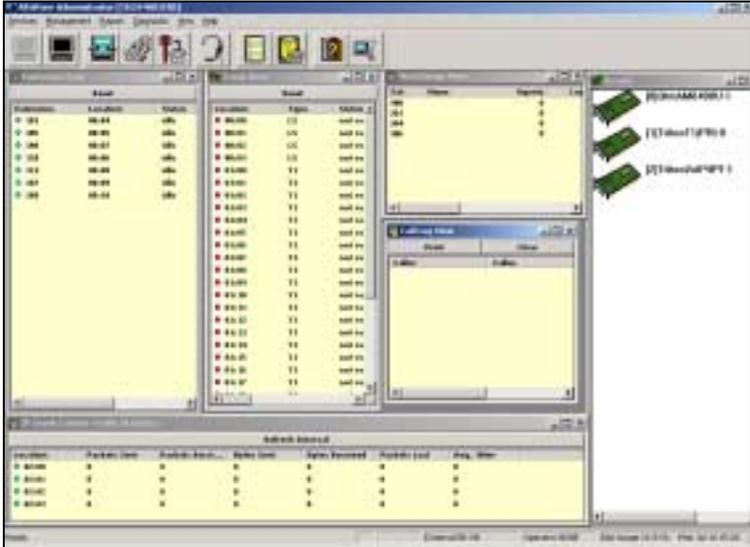


Figure 1. AltiWare Administrator main window

At the top you see the Main Menu bar and below that, the Quick Access Toolbar. At the bottom is a status bar that contains information on the current runtime status.

The main window contains separate child windows, or different views of the system. There are five default views: the boards, extensions, trunks, workgroups and call traffic.

Additionally, if appropriate, you can also run a view of IP Trunk Traffic, which is the 6th window, at the bottom in the above example.

The Main Menu

The Main Menu functions are as follows:

- **Services**
Login and logout, change password, backup and restore functions, and shutdown the switching service.
- **Management**
Opens windows to work with boards, trunks, extensions, out call routing, Auto Attendant, MVIP clock, audio peripheral, Quantum Board channels, and IP extension codec and configuration.
- **Reports**
System Summary, System Log, and IP Traffic Statistics.
- **Diagnostic**
Reserved for use by authorized technical personnel
- **View**
Show, hide, or set default alignment of the windows, the toolbar, and the status bar.
- **Help**
Online help and AltiWare version and license information

Quick Access Toolbar

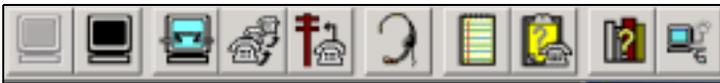
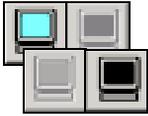


Figure 2. AltiAdmin Quick Access Toolbar

The toolbar contains icons representing shortcuts to frequently accessed functions: logging on and off, opening board, trunk, extension, and Auto Attendant configuration windows, displaying the system summary and system log windows, and getting online help. From left to right, the toolbar icons are as follows:



Logout and login. Click the light blue monitor at the left to login. When you do, the monitor grays out and the logout monitor at the right turns black. The monitors provide a clear indication of login status. While you're logged in, anyone at the keyboard can modify system settings.



System Configuration. Opens the System Configuration window to set system-wide options and parameters, the same function as **Management** → **System Configuration...**



Extension Configuration. Opens the Extension Configuration window, the same function as **Management** → **Extension Configuration...**



Trunk Configuration. Opens the Trunk Configuration window, the same function as **Management** → **Trunk Configuration...**



Auto Attendant Select. Opens the Auto Attendant Select window, the same function as **Management** → **Auto Attendant Select...**



System Summary. Opens the System Summary window, the same function as **Report** → **System Summary...**



System Log. Opens the System Log window, the same function as **Report** → **System Log...**



System Help. Opens the online help system main window, the same function as **Help** → **Help...**



About. Opens the About AltiWare window, which displays version, license and file information, the same function as **Help** → **About AltiWare...** Also, administrators can add, activate and register licenses from this information window.

The View Windows

As noted in “The AltiWare Administrator Main Window” on page 118, the AltiAdmin main window hosts a number of child windows, which are called *view* windows in AltiWare because they provide various views into the internal system setup and active status.

Boards View Window

Here is an example of the **Boards** window. This window displays the AltiServ Quantum or Triton boards hardware status. It displays the card location in the ISA or PCI slots and board model numbers.

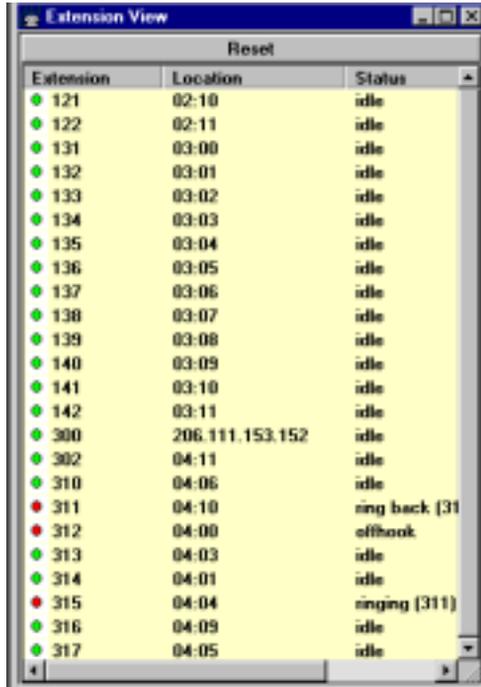


Figure 3. Boards window

Each board is represented by a board icon, followed by the logical ID ([0], the sequential location of the board), card model number (name of the board) and physical ID (the ID set using the dial on the faceplate of the board). For example, QtmAM0408U-1 is a Quantum board with four (4) trunk ports and eight (8) extension ports.

Extension View Window

Here's an example of an **Extension View** window, which displays the status of all assigned extensions.



The screenshot shows a window titled "Extension View" with a "Reset" button at the top. Below the button is a table with three columns: "Extension", "Location", and "Status". The table contains 17 rows of data. Each row starts with a radio button, followed by the extension number, the location (card ID and port), and the status. The status is "idle" for most, but "ring back (311)", "offhook", and "ringing (311)" for others.

Extension	Location	Status
<input checked="" type="radio"/> 121	02:10	idle
<input checked="" type="radio"/> 122	02:11	idle
<input checked="" type="radio"/> 131	03:00	idle
<input checked="" type="radio"/> 132	03:01	idle
<input checked="" type="radio"/> 133	03:02	idle
<input checked="" type="radio"/> 134	03:03	idle
<input checked="" type="radio"/> 135	03:04	idle
<input checked="" type="radio"/> 136	03:05	idle
<input checked="" type="radio"/> 137	03:06	idle
<input checked="" type="radio"/> 138	03:07	idle
<input checked="" type="radio"/> 139	03:08	idle
<input checked="" type="radio"/> 140	03:09	idle
<input checked="" type="radio"/> 141	03:10	idle
<input checked="" type="radio"/> 142	03:11	idle
<input checked="" type="radio"/> 300	206.111.153.152	idle
<input checked="" type="radio"/> 302	04:11	idle
<input checked="" type="radio"/> 310	04:06	idle
<input type="radio"/> 311	04:10	ring back (311)
<input type="radio"/> 312	04:00	offhook
<input checked="" type="radio"/> 313	04:03	idle
<input checked="" type="radio"/> 314	04:01	idle
<input type="radio"/> 315	04:04	ringing (311)
<input checked="" type="radio"/> 316	04:09	idle
<input checked="" type="radio"/> 317	04:05	idle

Figure 4. Extension View window

The radio button to the left of each extension number is green when the extension is idle, and red when the extension is *not ready* or *in use*. The **Location** number (i.e. 01:04) identifies the card ID and port (channel) number on the board. For example, in location 01:04, the card ID is 1 and the port number is 4. If an extension user with IP Extension enabled has logged onto an IP extension, the location will show the static IP address you have assigned. If you use dynamic IP addressing, this location will change every time the user logs off and back onto an IP extension.

You can double-click any extension number to open the Extension Configuration window for the selected extension.

The **Reset** button resets the selected extension to the idle status. When you click the **Reset** button, a small dialog box opens, asking if you want to continue with the reset and displays the selected extension number and the name of the person assigned to the extension.

You can click the Reset button without selecting an extension, and then type in the extension number for the extension to reset.

Trunk View Window

Here's an example of the **Trunk View** window, which displays the status of all assigned trunks.

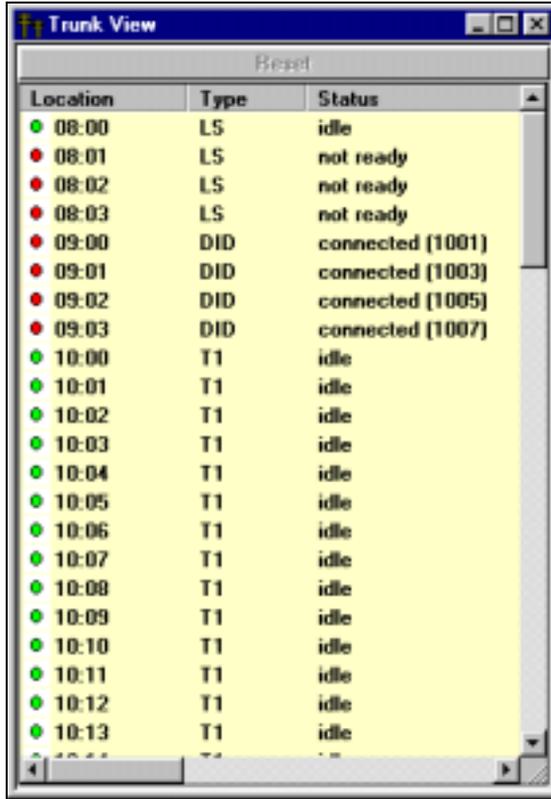


Figure 5. Trunk View window

The radio button to the left of each trunk location is green when the trunk is idle, and red when the extension is *not ready* or *in use*. The location format is *slot:channel*—for example, channel 3 on the board in slot 9 is location 09:03.

You can double click any trunk location to open the Trunk Configuration window for the selected trunk.

The **Reset** button resets the selected trunk(s) to the idle status. You'll be asked to confirm the reset and a status message will tell you if the reset was successful. You can select and reset multiple trunks.

WorkGroup View Window

Here's an example of the **WorkGroup View** window, displaying data and statistics for workgroups:



Ext.	Name	Agents	Logon	Not Available	Wait	Queue	Waiting Time	Service Level	In Calls
5002		8	0	0	0	0	00:00:00	100	0
5003		28	20	29	0	11	00:03:07	0	20
5004		16	16	0	0	0	00:00:00	100	0

Figure 6. WorkGroup View window

This window displays the following data:

- **Extension**—the workgroup pilot extension number
- **Name**—the workgroup name
- **Agents**—the number of agents assigned to the workgroup
- **Logon**—the number of agents logged into the workgroup
- **Not Available**—the number of agents who are currently on the phone, or who are unavailable with the Do Not Disturb or other status
- **Wait**—the number of agents who are in wrapup mode
- **Queue**—the number of calls waiting to be answered
- **Waiting Time**—the average waiting period before incoming calls are answered
- **Service Level**—displays the percentage of calls being answered within an acceptable period of time
- **In Calls**—displays the number of incoming calls to each workgroup

Call Log View Window

Here's an example of the **Call Log View** window, which displays the line and trunk traffic history.

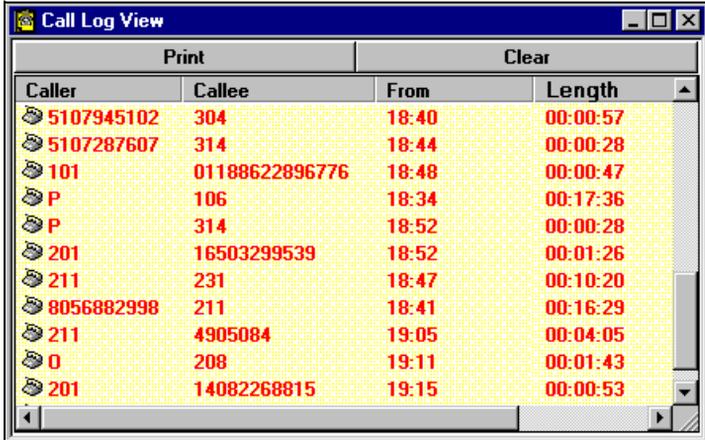


Figure 7. Call Log View window

The window displays, for the last 30 calls, the caller line or number, the callee, the starting time in 24 hour format and the length of the call.

You can select calls and click the **Print button** to print the selected log entries for the call.

You can click the **Clear** button to clear the window of all data.

IP Trunk Current Traffic Statistics Window

Here's an example of the **IP Trunk Current Traffic Statistics** window.

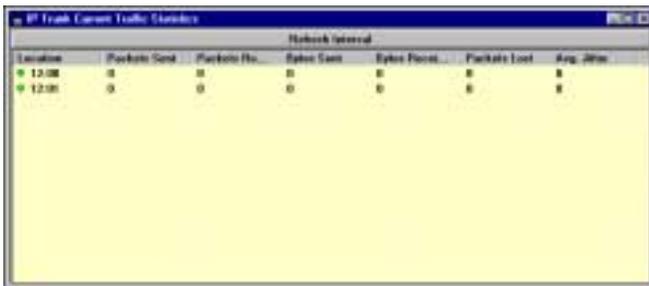


Figure 8. IP Trunk Current Traffic Statistics window

The information you see, which is for currently active calls, is as follows. The packet and byte data that follows is for *data sent or received from other AltiServ systems over the public or private IP network*.

- **Location**—the Triton VoIP *board ID:channel ID*
- **Packets Sent**—the number of voice packets sent
- **Packets Received**—the number of voice packets received
- **Bytes Sent**—the total size (in bytes) of all voice packets sent
- **Bytes Received**—the total size (in bytes) of all voice packets received
- **Packets Lost**—the number of voice packets that have been lost due to prolonged delays, network congestion or routing failure
- **Average Jitter**—displays the average length of delay per voice packet in milliseconds. This number can be used to measure the quality of service on the network that connects the source and destination sites. Under 100 milliseconds is good, while a higher figure indicates a longer than average delay.

Status Bar

The information at the bottom of the window in the **Status Bar** displays informational and status messages such as name of the operator, disk usage status, status of external logging, current time, and other data.

Setting the Refresh Interval

The **IP Trunk Current Traffic Statistics** window is updated according to the **Refresh Interval** configuration. By default, the **Refresh Interval** is set to refresh the data in the window every 5 seconds. To change the refresh interval, click the **Refresh Interval** button and use the slide rule to set the time to an interval to a number of seconds up to one minute. Each tick on the rule represents 5 seconds. To set the time to 0 is to *turn off refreshing the data*.

Logging In

To log in and use the AltiAdmin functions, click the **Login** icon (the left-most icon in the toolbar) or select **Login...** on the **Services** menu. You'll be prompted to enter the password and click **OK**.

Changing the Password

To log out, click the **Logout** icon (second icon from the left of the toolbar), or select **Logout** from the **Services** menu.

The logout option in the **Services** menu allows the system administrator to log out of the system. You should always log out after you have completed the administrative or configuration tasks. This will prevent unauthorized persons from accessing the AltiWare configuration functions. AltiWare telephony functions continue to run in the background on the AltiServ.

Changing the Password

Change the password frequently to prevent unauthorized access to the system. You can change the password only if you're already logged in. Select **Change Password** from the **Services** menu to open a Change Password dialog box. You'll be prompted type in and verify the new password and then click **OK**.

Stopping the AltiGen Switching Service

Normally, when you exit AltiAdmin, the AltiGen services that provide the various telephony and data services remain active—they are needed to run the system, of course. If you need to shut the entire system down, select the **Stop Switching Service** option from the **Services** menu. This stops the AltiWare system services, including the AltiAdmin application itself. When you re-open AltiAdmin, the switching services are reactivated.

This option is available when you are logged in at the AltiServ system computer; it is *not* available from a remote AltiAdmin client.

System Configuration



The **System Configuration** functions provide for configuring the AltiWare system-wide settings.

Access System Configuration by selecting **System Configuration...** on the **Management** menu, or by clicking the System Configuration icon.

You can then work with the following settings, each of which is accessed by a tab in the System Configuration window.

- **General setup**—system ID, area code and number, operator and manager extensions, country, extension and DID number lengths, distinctive ring, conference call, and system park options.
- **Number plan**—how the system responds to each first digit dialed.
- **Business hours**—used by system functions.
- **Holiday**—how calls are routed on designated holidays.
- **System speed dial numbers**.
- **Call restrictions**—prefixes to block, toll call prefixes and call control.
- **Account Code**—tables for creating and removing account codes.
- **Call reports**—CDR logging and data export.
- **Messaging**—basic parameters and settings for voice and email messaging.
- **Area codes** and required prefix setup—for exceptions to toll call standards.
- **IP Dialing Tables**—tables for voice over IP.
- **DNIS**—inbound call routing during different time periods.
- **Tenants**—sharing an AltiServ system among multiple companies.
- **Distribution List**—for voice message forwarding.
- **Logout Reason Codes**—for workgroups.

Setting General Parameters

The General tab is the default window you see when you open the System Configuration window. You use this window to set the system area code and number, operator extension, country, distinctive ring, conference call, and system park options.

To access the General settings, select **System Configuration...** on the **Management** menu, or click the System Configuration icon. If the System Configuration window is already open, click the **General** tab.

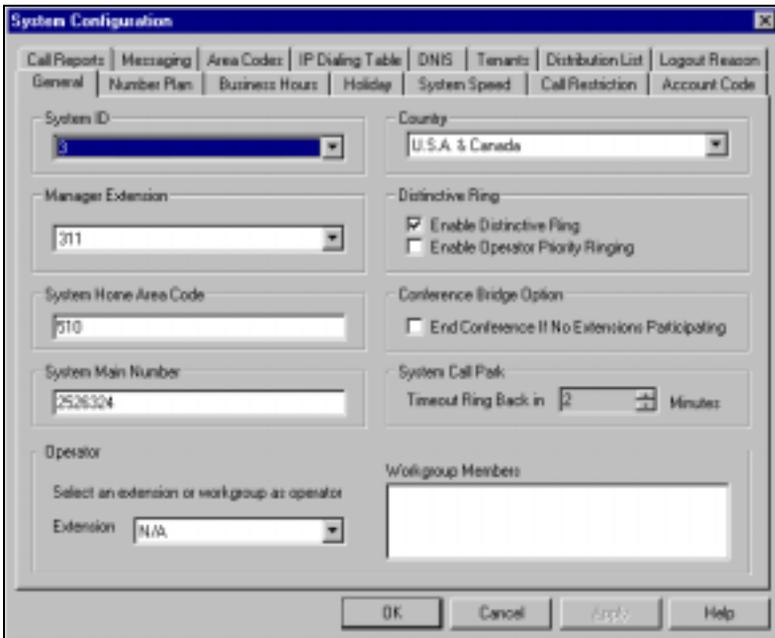


Figure 1. General window, System Configuration.

You can set the following parameters and options:

Parameter	Description
System ID	Reserved for future use.
Country	Select a location for the system.

Parameter	Description
Manager Extension	<p>Type the system manager's extension number.</p> <p>The system manager has access to system administrator functions.</p> <p>For information on setting up extensions, see <i>Chapter 8, Extension and Workgroup Configuration</i>.</p>
Distinctive Ring	<p>Enables users to distinguish between internal, external, and operator calls by the way the phone rings:</p> <ul style="list-style-type: none"> • Enable Distinctive Ring—establishes a short double ring cadence for internal calls and a normal, single ring for external calls. Unselected, both rings are normal. • Enable Operator Priority Ring—produces a long single ring between short pauses on calls to the operator.
System Home Area Code	Area code for the system location.
System Main Number	The main system telephone number, which is sent to the pager's display when a user's messaging options are configured to call a pager. This is also the number subscribers call to access the AltiGen Voice Mail System.
Conference Bridge Option	<p>Selected, conference calls will end when all internal lines have disconnected from the conference bridge.</p> <p>Not selected, the conference connection can continue between outside parties, even after all internal parties have disconnected.</p>
System Call Park Timeout Ring Back in	Allows the user to park a call, then pick up the call from another extension, forward the call, or take some other action. If the call is forgotten or the forward not picked up, the Ring Back time sets the number of minutes a call remains parked before the user's extension is rung again. To the caller, the call park sounds like being put on hold.

Parameter	Description
Operator Extension and Workgroup Members	Select the extension to be used by the system operator. For the extension you select, the workgroup members show up in the Workgroup Members box. For further information on extensions, see <i>Chapter 8, Extension and Workgroup Configuration</i> .

Setting a System Number Plan

The System Number Plan defines the extension digit length. You can use from 3–6 digits for extensions. You also use the System Number plan to set a DID number length to use, and to define the system response to the first digit dialed—for example, pressing **9** to get a trunk line.

The numbering scheme requires some thoughtful planning. You cannot edit the extension *length* after the first extension is assigned. Further, if a *first digit dialed* is assigned to extensions and you have set up extensions beginning with that digit, you cannot change the digit assignment without first deleting all affected extensions. For example, if **7** is assigned to *Extension* and you're using extensions 7010, 7113, etc., you cannot reassign **7** to say, IP trunk access, without first deleting all the *7nnn* extensions.

Accessing the Number Plan

To access the Numbering plan settings, select **System Configuration...** on the **Management** menu, then click the **Number Plan** tab.

The screenshot shows the 'System Configuration' window with the 'Number Plan' tab selected. The 'Extension' section has 'Number Length' set to 3 and 'Default Password (For newly created ext)' set to 74903. The 'DID' section has 'Number Length' set to 3. The 'First Digit Assignment' section contains a grid of dropdown menus for digits 1 through 9, *, 0, and #. The assignments are: 1: Extension, 2: Extension, 3: Extension, 4: Extension, 5: Extension, 6: Trunk Access, 7: Extension, 8: IP Trunk Access, 9: Route Access, *: Invalid, 0: Operator, #: Feature Access. A note at the bottom states: 'This screen defines how the system responds to the first digit entered by the user. For example, if Extension is selected for digit '1', the system will then treat the number that begins with a '1' as an extension number.' Buttons for 'OK', 'Cancel', 'Apply', and 'Help' are at the bottom.

Figure 2. Number Plan window, System Configuration

Use the Number Plan window to specify the following parameters:

Parameter	Description
Extension Length	The number of digits for your extension numbering system. Valid entries are from 3–6. For example, extension 2001 and 4020 are 4-digit extension numbers. Note: <i>The extension length is not adjustable once the first extension is configured. To be more precise, the length cannot be changed without totally reconfiguring the system or deleting all the extensions already configured.</i>
Default Password	The default password for newly created extensions will be randomly set; when changing the password, it must be four to eight digits in length.

Assigning Trunk, IP Trunk, & Route Access

You can use *trunk*, *IP trunk*, and *route access* outgoing call options alone or in combination when making the number plan assignments.

Trunk Access

Usually, **9** is used as the analog or PSTN trunk access code, and AltiWare uses 9 as the default for trunk access. You can keep that configuration and assign other digits such as **7** or **8** to Route Access and IP trunk access, or you can change it. There are no defaults for IP trunk or Route Access.

IP Trunk Access

Only one IP trunk access option is allowed per AltiWare system. It is highly recommended that the same IP trunk access code (e.g. **8**) be used for all AltiWare systems in the network. To use Voiceover IP, you must set up this access and, in addition, configure the IP Dialing Table as discussed in “Defining an IP Dialing Table” on page 156 and set the VoIP codecs as discussed in “Setting VoIP Codecs” on page 225.

Note: After setting the IP Trunk Access code here, you should set the Trunk Access Codes of any 30-port VoIP boards to “None” on the General tab of the Trunk Configuration window (see “Setting General Trunk Attributes” on page 199). This will prevent users from directly accessing the 30-port boards—which use the G.711 codec only—for calls to AltiServ servers or other IP gateways that may require the G.723 codec. If you still want users to have access to this trunk for outgoing calls, you can set it up through Outcall Routing (see *Chapter 9, Out Call Routing Configuration*).

Route Access

The Route Access option can be assigned to one or more digits, to route the call per the out call routing table. Out call routing, which is sometimes called ARS (Automatic Route Selection) or LCR (Least Cost Routing without carrier rate table), is described in *Chapter 9, Out Call Routing Configuration*.

Out call routing is designed to help 10-digit dialing, zoomerang dialing, digit manipulation, and tie trunk hop-off dialing.

Note: When making or editing these or other number plan assignments, refer to the considerations on setting and editing discussed in “Setting a System Number Plan” on page 132.

Setting Business Hours

The Business Hours tab contains group boxes for setting the business hours and days of the week for which the business or organization is in operation. The business hours schedules are used to set other AltiWare settings such as trunk usage or routing DNIS calls to different extensions depending on the time and day.

Note: Because the business hours are used throughout the system, *you or the appropriate administrator must make sure the system time has been set correctly*. The system time can be changed using the Date/Time utility in the Windows or NT Control Panel.

To access the Business Hour settings, select **System Configuration...** on the **Management** menu, then click the **Business Hours** tab.

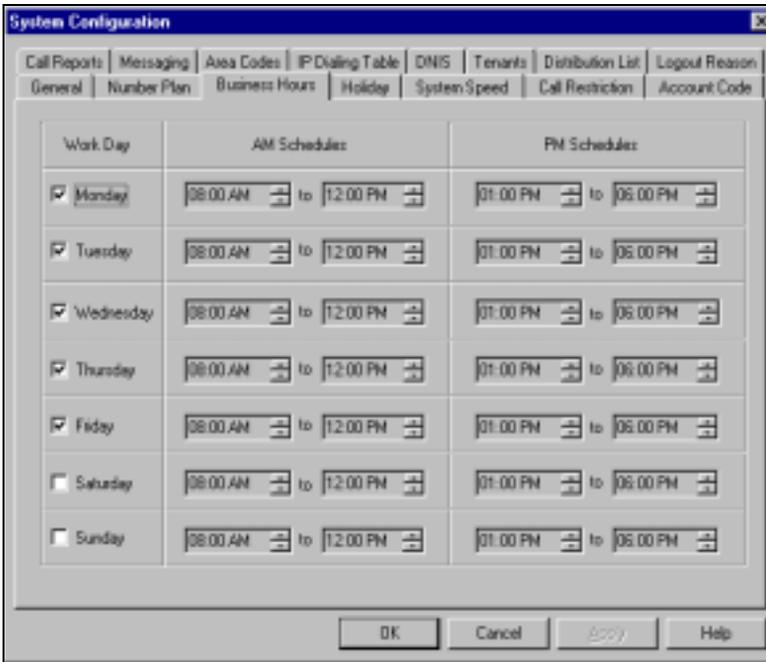


Figure 3. Business Hours window, System Configuration

Routing Calls on Holidays

Set the business schedule parameters as follows:

Parameter	Description
Work Day	Select the days of the week on which the company does business. For example, if the company does business Monday – Friday, the check boxes for those days should show check marks.
AM and PM Schedules	<p>For each day of the week, select the time periods during which the company is available for business. The time between the AM and PM times can be used to indicate a lunch break or time between shifts.</p> <p>If you don't want to set a break between AM and PM schedules, set the PM starting time to be the same as the AM ending time.</p> <p>Or if you wish to specify 24 hours as standard business hours, select the following hours:</p> <p>AM Schedules: From 08:00 AM To 12:00PM</p> <p>PM Schedules: From 12:00 PM To 08:00 AM</p>

Routing Calls on Holidays

You can create special routes for incoming DNIS and trunk calls that come in on designated holidays. For holidays that your organization treats as half-days, you can create separate routes for business and non-business hours.

Note: Incoming DID and tie trunk calls will not follow holiday routes, but go to the dialed extensions directly.

To access Holiday Routing settings, select **System Configuration...** on the **Management** menu, then click the **Holiday** tab.

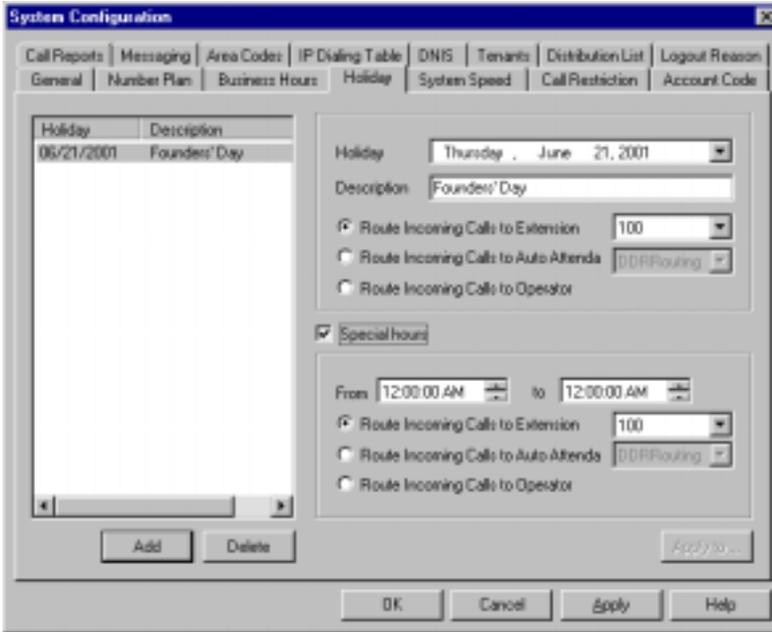


Figure 4. Holiday window, System Configuration

Set holiday routing as follows:

1. Click **Add** to create a new holiday. In the popup that displays, select a date from the dropdown and enter a description to identify the holiday.
2. Set call routing for “normal” holiday hours using the field group in the upper half of the Holiday window.

This is the default route for calls coming in on the holiday.

3. Optionally, select **Special hours** and set call routing for special hours using the field group in the lower half of the Holiday window.

This route will override the route for normal holiday hours, for the hours you specify. Use this option, for instance, to route calls for the working portion of a holiday that your organization treats as a half-day.

Configuring System Speed Dialing

You can set up to 60 system speed dial numbers. The numbers available are from 00 – 59, used following the system speed dial access code, #88.

Speed dial settings for individual extensions are set in Extension Configuration. (See “Setting up Station Speed Dialing” on page 238.)

To access the Speed Dialing settings, select **System Configuration...** on the **Management** menu, then click the **System Speed** tab.

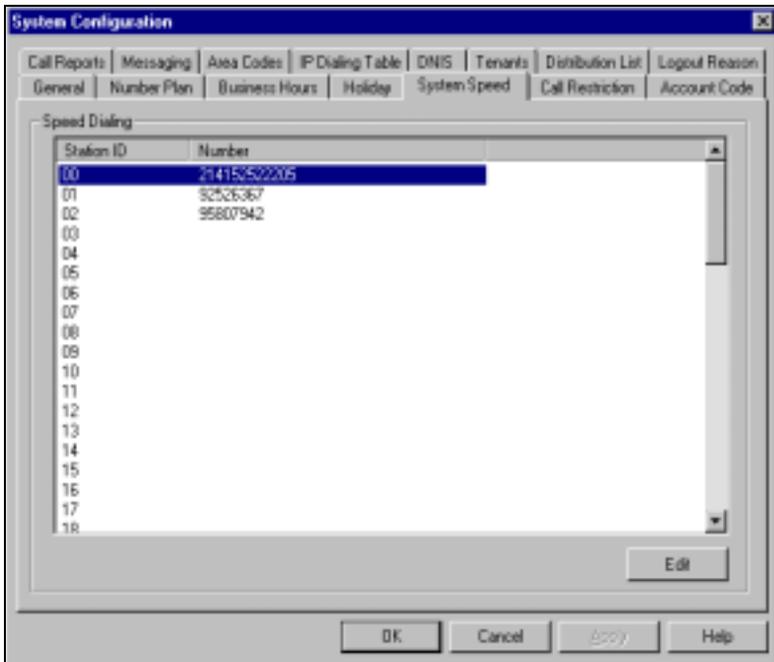
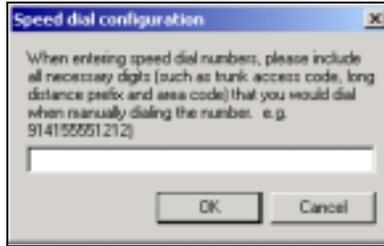


Figure 5. System Speed window, System Configuration

Editing Speed Dial Entries

To add or edit an entry, double-click the **Station ID** number you want to work with, or select the number and click **Edit**. A dialog box appears:



Type in the full number as you would dial it, with a maximum of 20 digits per entry. For example, the phone number 914085551212 comprises of **9** (trunk access code), **1** (long distance prefix), followed by **408** (area code), and finally the seven digit telephone number.

Valid digits include **0** through **9**, **#**, *****, and **(,)** comma. **The comma represents a one (1) second pause.**

Adding Names and Comments

If you want to add names and comments for the users' convenience, use the following steps:

1. Configure the system speed dialing numbers as described in the preceding procedure.
2. Open an AltiView user desktop and define the names and comments for the speed dialing numbers.
3. Save the speed dial setup and Exit AltiView.
4. From the **C:\Program Files\AltiGen\AltiView\<ext#>**, copy **sys speedlist.dat** directory to the same directory for every AltiView user desktop.

Defining System Call Restrictions

Call Restriction allows you to block outgoing calls for up to 20 prefixes. This window also provides for blocking *all* outgoing calls and for enabling hop off to other trunks when that function has been set up.

The restrictions you set up here are global restrictions.

Note: The dialing restrictions set here are one of three ways of blocking calls. See “About Restricting Outgoing Calls” on page 261 for a discussion of the uses of the different functions.

To access call restriction setup, select **System Configuration...** on the **Management** menu, then click the **Call Restriction** tab.

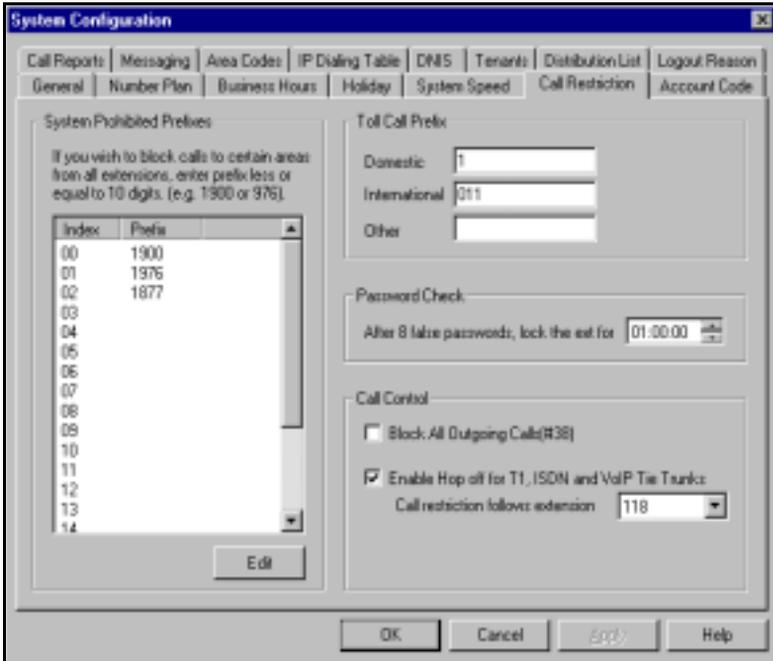


Figure 6. Call Restriction window, System Configuration

Blocking Calls to Area Codes from All Extensions

To add or edit system prohibited area codes:

1. Double-click an index entry in **System Prohibited Prefixes** list, or select the index entry and click **Edit**. This opens a dialog box that allows you to enter a prefix number.
2. Enter a **1** and the dialing prefix to block (e.g. 900, 976). You can enter up to 20 digits maximum for each prefix. For example, to block calls from all extensions to 976 numbers, type 1976.
3. Click **Apply**.

Setting Toll Call Prefixes

AltiWare uses the **Toll Call Prefixes** to determine the type of outside call and imposes restrictions when necessary. For example, if the international toll call prefix is **011** and a user attempts to make an international call from an extension without international call privileges, the call will be terminated as soon as the user dials **011** after the trunk or route access number. The caller hears an error tone.

The toll prefixes set here should match the dialing plan prefixes for the country set in the General window (see “Setting General Parameters” on page 130). You can set the following toll call prefixes.

- **Domestic.** The dialing plan for your country or region. For example, type in a **1** for 1-plus dialing within the U.S. dialing plan (also known as the North American Numbering Plan).
- **International.** The prefix used for international calls. For example, this is **011** for international calls made in the USA.
- **Other.** Flexible and variable uses such as a string of digits to be considered non-local.

Locking Attacked Extensions

If a user enters eight consecutive invalid passwords when logging on, AltiWare considers this an attack. To protect your company from theft of services, you can lock an attacked extension for the period of time you specify (1-24 hours) in the **Password Check** field group.

To unlock an extension, use the Extension Checker tool that is installed with AltiWare. See “Extension Checker” on page 371.

Blocking All Outgoing Calls

To block all outgoing calls—for example, when testing or modifying the system—select the **Block All Outgoing Calls** check box.

Enabling Hop Off for Tie Trunks

When selected, this function allows calls over T1 tie trunks to use PSTN trunks or other servers, when those trunks have been configured to accept tie-trunk calls. For Hop Off to work, it must be enabled on all AltiServ systems on which trunk calls are able to be used as a transit switch.

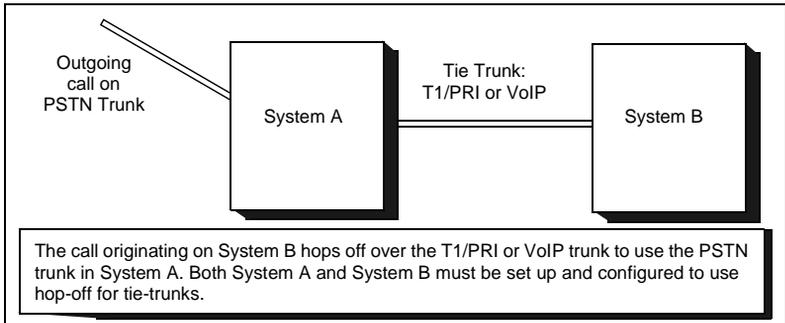


Figure 7. Hop Off for Tie Trunks

The trunk configuration to allow this function is discussed under “Setting General Trunk Attributes” on page 199.

The board must be configured to allow for tie trunks, as discussed in “Setting up T1 or PRI Channels on the Triton T1/PRI Board” on page 191.

Restricting Tie Trunk Calls

You can set call restrictions on tie trunk calls by telling the system to use the same restrictions as the ones set up for an extension. Using the **Call restriction follows extension** drop-down list, you can select the extension with the restrictions to use for the tie trunk calls.

Creating Account Codes

Account Codes let you enable or force users to assign incoming and outgoing calls to particular account codes for billing, tracking, or forecasting purposes.

To access the Account Code window, select **System Configuration...** on the **Management** menu, then click the **Account Code** tab.

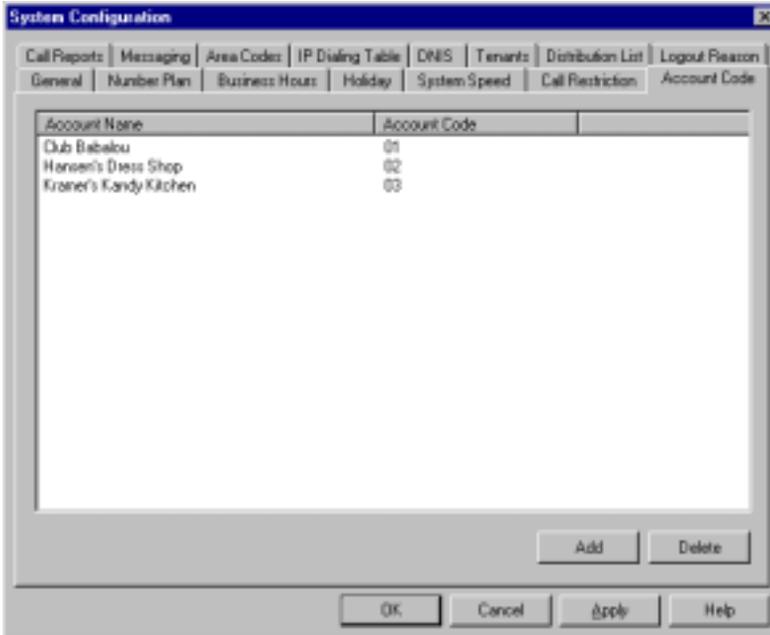


Figure 8. Account Code window, System Configuration

Adding and Deleting Account Codes

To create an account/code association, click **Add**. Enter an Account Name and Account Code in the dialog box that appears.

- The Account Code may contain 1-10 digits.
- You can assign the same Account Code to different Account Names.

To delete an account and its code, select it and click **Delete**. You can select multiple items for deletion by using **Ctrl-click** or **Shift-click**. Click **Apply** to save your changes and **OK** to save and close the window.

You can now set options for each extension that determine whether account codes can be forced or bypassed. See “Establishing Basic Extension Attributes” on page 221.

Setting up Call Reports

You can set up call reporting if AltiWare and AltiAdmin are installed on the same server.

In AltiWare OE Release 4.5, call reporting distinguishes between *call detail* data, which records every call made to, out of, and within the AltiServ system, and *RTM* data, which is workgroup-related statistical data captured from the real-time monitoring function used in the AltiSupervisor client application. Both types of data can be set up for call reporting, or logging, although their storage systems are different.

- **Call detail data** can be logged to your local drive, to a remote server, and/or exported via a COMM port.
- **RTM data** is always logged to your local drive.

Data logged to your local drive is stored in a directory called **AltiDB**, which is located by default on the root of the drive where AltiWare is installed. Files are stored in .mdb format.

Backups, if you choose to make them, are created in a subdirectory called **DBBackup**, which in turn contains three subdirectories: **MCDR** for Advanced Call Data, **RTMCALL** for Call Data, and **RTMDATA** for RTM data. These three types of data have separate report screens in the CDR Search client, and are described in the CDR documentation.

The CDR formats are described in “Call Accounting Report Formats” on page 409.

To set up Call Reports, select **System Configuration...** on the **Management** menu, then click the **Call Reports** tab.

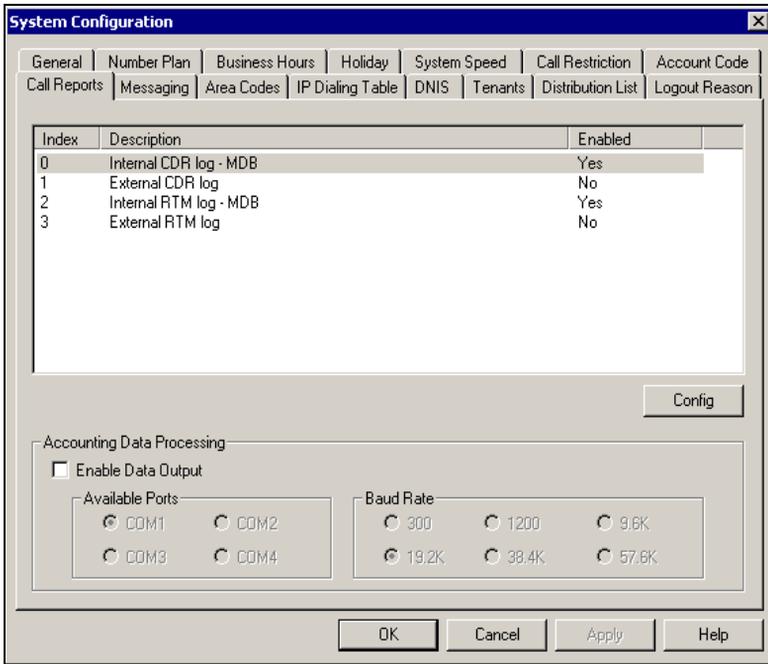


Figure 9. Call Reports window, System Configuration

Internal (Local) Logging of Call Data Data

To enable CDR collection to the local drive, select **Internal CDR log - MDB** and click the **Config** button. A dialog box appears.



Figure 10. Enable local call data logging

To enable RTM data collection to the local drive, select **Internal RTM data - MDB** and click the **Config** button. A dialog box appears.

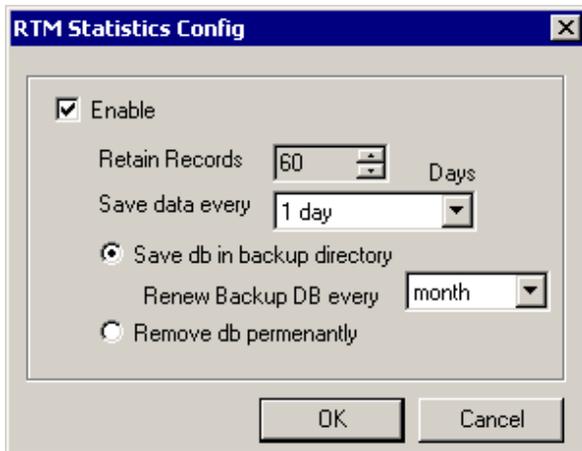


Figure 11. Enable local RTM data logging

Parameter	Description
Enable	Check to enable internal (local) logging of call data.
Retain Records	Select the number of days to retain records. This can be any number of days from 1–365.
Save data every (RTM Statistics only)	Specifies how often to save workgroup call data from the real-time monitor. This setting, with intervals ranging from 15 minutes to 1 day (24 hours), provides the minimum level of granularity at which RTM data (“Workgroup Statistics”) will be reported from the CDR Search client.
Save db in backup directory	Select to save backup files into the AltIDB >DBBackup folder. Select a Renew option to specify how often to save the backup files. AltWare will save all data that overflows the Retain Records limit each day at midnight, into a file of format <yyyyymmdd>.mdb.
Remove db permanently	Select to remove data after the Retain Records limit is passed instead of backing it up. When the Retain Records limit is reached, the oldest day’s data is removed permanently.

Example:

- **Retain Records** is set to 60 days
- **Save db** is selected
- **Renew Backup** is set to every month

With these settings, on day 61 a backup file is started in the DBBackup folder. Each day’s call or RTM data is added to this file for one month. At the end of a month, a new file is started in DBBackup, which is likewise appended with each day’s call or RTM data every day at midnight.

Backup files are dated and renewed according to the following schedule, regardless of when you actually make the **Renew** selection.

Renew setting	Renewal Dates
day	daily, at midnight
week	every Sunday
2 weeks	the 1st and 15th of every month
month	the first of every month
3 months	December, March, June, September
6 months	January and June
year	January

External (Remote) Logging of Call Data

AltiWare allows you to output call accounting to a Microsoft SQL 7 or SQL 2000 database or to a third party external application.

In either case, the database cannot be on the same server as the AltiWare system. A system integrator or database developer will need to write a custom query to extract data from the SQL database.

You can send reports from a number of different AltiServ systems to the same database.

Note: Before you enable external logging using this window, you need to set up and configure the database. It should be ready to receive the reports before you enable the export here.

To enable CDR collection to the local drive, select **External CDR log**, and click the **Config** button. A dialog box appears.

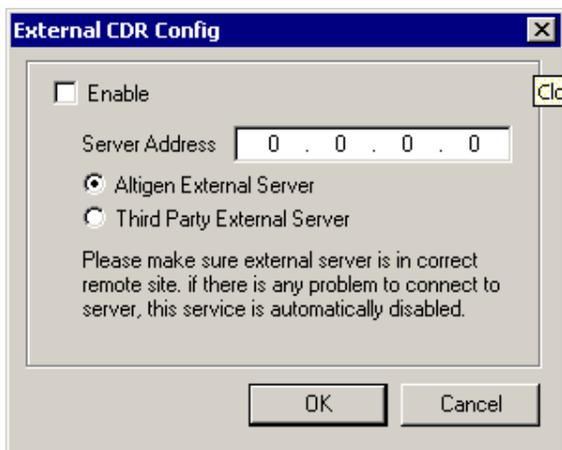


Figure 12. Enable external call data logging

Parameter	Description
Enable	Check to enable external (remote) logging of call data.
Server Address	Enter server's IP address.
Altigen External Server	Select to use AltiGen's implementation of the Microsoft SQL database.
Third Party External Server	Select to export the data to a third party application.

Note: AltiGen does not provide any SQL backup and restore utility. We strongly recommend that you use SQL Backup and Maintenance utility to perform daily backup and maintenance jobs, and use a restore utility to restore the database. If you need to reconstruct the SQL server, run the External Logger Setup to create an empty calldb database before restore.

To enable RTM data collection to the local drive, select **External RTM log**, and click the **Config** button. A dialog box appears.

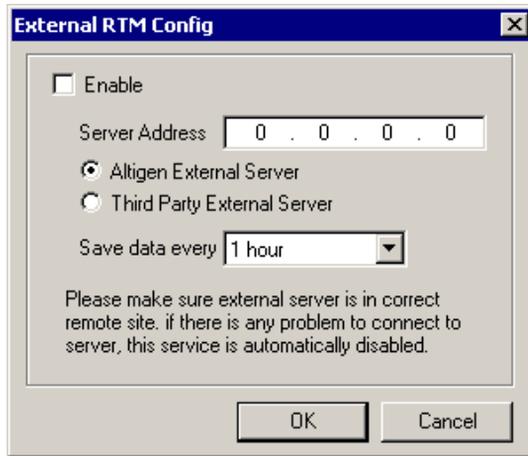


Figure 13. Enable external RTM data logging

Parameter	Description
Enable	Check to enable external (remote) logging of call data.
Server Address	Enter server's IP address.
Altigen External Server	Select to use AltiGen's implementation of the Microsoft SQL database.
Third Party External Server	Select to export the data to a third party application.

Exporting Through a Local Port

You can send the CDR to a COMM Port to export to, for example, an accounting data processing system.

To do this, select the **Enable Data Output** box in the **Accounting Data Processing** field group. Then select an **Available Port** and the **Baud Rate**.

Managing Messages

The Messaging function provides for setting basic parameters and options for messaging, including message notification retry attempts, deletion confirmation options, the length of time for message storage, message recording length, and email activation and usage.

To access Messaging setup, select **System Configuration...** on the **Management** menu, then click the **Messaging** tab.

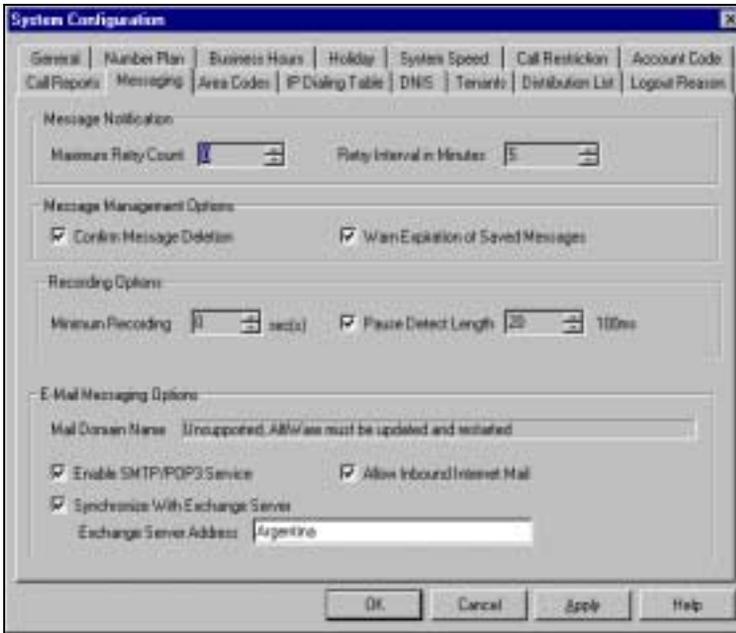


Figure 14. Messaging window, System Configuration

Setting Message Notification Retries

When a message is sent to a user's email in-box or voice mailbox and outcall notification is configured, notification is sent to the user. You can set the retry setting for the notification as follows:

Parameter	Description
Maximum Retry Count	Can be between 0 and 16 . This is the number of times the system will try to deliver a voice message notification <i>after</i> the original attempt. For example, 5 retries means five tries after the original, or 6 total attempts.
Retry Interval in Minutes	The number of minutes between retry attempts. Five minutes is the minimum and 60 minutes is the maximum interval allowed. The default is 5 minutes.

Setting Message Management Options

Set message confirmation and warning parameters:

Parameter	Description
Confirm Message Deletion	If checked, the system plays a voice message instructing the user to confirm request for deletion by pressing the # key. This prevents users from accidentally deleting messages with a single key entry.
Warn Expiration of Saved Messages	If checked, the system warns the user that saved messages will be deleted due to their retention time expiring. The message is given the day before the messages are automatically deleted, and the user then has the option to either keep or delete the message. By default, this feature is enabled. Note: If this feature is disabled, saved messages are deleted automatically without warning when they expire.

Setting Message Recording Options

Set message recording parameters:

Parameter	Description
Minimum Recording	<p>Sets the minimum length in seconds for any recording (i.e., incoming voice mail message, personal greeting, system prompts). This can be from 1–5 seconds, or 0, which means no minimum.</p> <p>All recordings that are shorter than the designated Minimum Recording length are deleted. This feature is recommended when users receive many empty voice mail messages on a regular basis and would like them automatically deleted.</p>
Pause Detect Length	<p>Selected, this feature causes the deletion of pauses in messages. The default pause detect length is 500 ms. The pause detect can be disabled by deselecting the check box, or the length can be set to a value between 200–2000 ms (.2–2 seconds).</p>

Setting E-mail Messaging Options

To use the AltiWare email services, configure the following settings.

Parameter	Description
Enable SMTP/POP3 E-Mail Service.	Selected, this enables incoming and outgoing mail services on AltiServ—Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP).
Allow Inbound Internet Mail.	This check box option is activated and selected by default if you enable the SMTP/POP E-Mail Service. You can deselect this option if you don't want to use the AltiWare E-Mail service for inbound mail; for example when you're using another email server on the AltiServ system.
Synchronize with Exchange Server.	<p><i>Before selecting this option to use an Exchange Server, you should make sure the Exchange Server and Windows / NT configuration is established. See the AltiGen document, Exchange Server Integration in AltiWare OE.</i></p> <p>Select this option if you are using an Exchange Server and want to synchronize it and the AltiServ servers—that is, when emails or voice mails are deleted from one service, they are automatically deleted from the other server as well.</p> <p>If you choose this option, you must type in the Exchange Server Address. The name must be just the name of the machine or the fully qualified domain name.</p>

Setting Area Code Toll Definitions

The Area Codes window provides for setting exceptions to toll call rule standards regarding area codes and prefixes. To use a common example, the system treats calls that begin with **1** as long distance toll calls. You can use the Area Codes window to specify treatment of 800 and 888 numbers as free calls; this configuration enables the system to properly handle such numbers.

You can set up three types of exceptions, which are explained in more detail in the window itself.

- **Local Call Definition.** Calls that begin with **1** but are free (e.g., 800).

- **10 Digit Dialing.** Local calls that require dialing area codes but do not require dialing **1** first.
- **1 + 10 Digit Dialing.** Calls within the home area code that require **1 + Area Code + Number**.

Accessing Area Codes Setup

To access the Area Code window, select **System Configuration...** on the **Management** menu, then click the **Area Codes** tab.

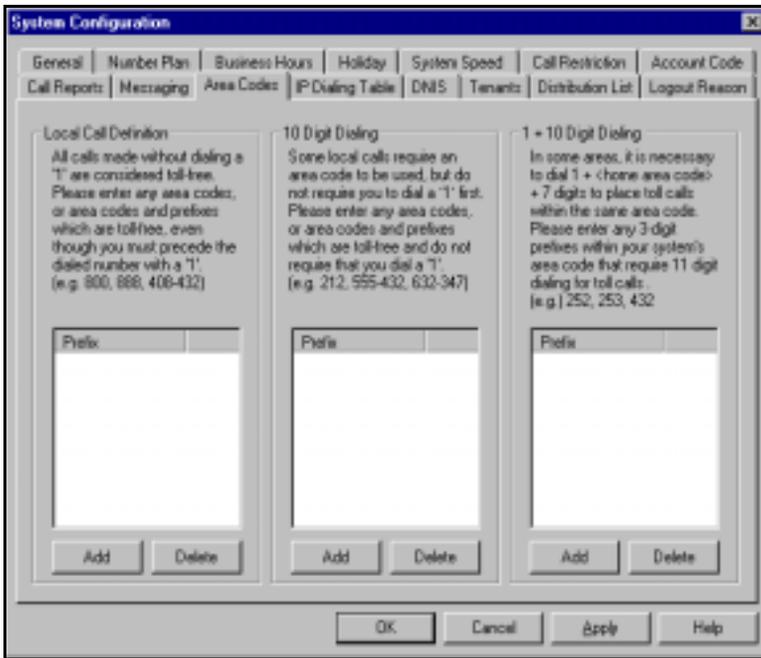


Figure 15. Area Codes window, System Configuration

Adding and Deleting Entries

To add entries to one of the three lists, click **Add** below the appropriate list box. In the dialog box that appears, type a number and click **OK**.

To delete an entry, select it and click **Delete**. You can select multiple entries for deletion by using **Ctrl-click**. Click **Apply** to save your changes and **OK** to save and close the window.

You can type an area code alone, or an area code + prefix if needed. When you type the area code and prefix, optionally you can connect them with a single hyphen—for example, 510-487, or 212-677. The optional hyphen is for your convenience and readability. Using the same examples, 510487 and 212677 are also valid entries.

Defining an IP Dialing Table

To use an Altiserv-to-Altiserv connection for voiceover IP, you need to configure the routing in the IP Dialing Table for each Altiserv system.

Note: To enable VoIP, you must have at least one Triton VoIP board installed and configured. (The IP Dialing Table is disabled unless there is at least one VoIP board installed.) You also must have assigned an IP Trunk Access code, as discussed in “Assigning Trunk, IP Trunk, & Route Access” on page 134, and you must set the VoIP codecs as discussed in “Setting VoIP Codecs” on page 225.

About the Location ID Digit Length

In the IP dialing table, you define the addresses of the remote locations and set a **Location ID Digit Length**. The dialing length sets the length of the **Location ID**, the number you define in the dialing table to identify each remote location.

The Location ID is used in dialing: the user dials the IP trunk access, followed by the location ID to identify the remote location, followed by the remote extension. For example, if the *IP trunk access* is **8**, the *location ID* is **27**, and the *extension* to reach is **837**, the user dials **8 27 837**.

The Location ID Digit Length can be set to None, 1, 2, or 3—a seemingly simple choice. However simple it seems, though, it needs to be given some thought before it is set. Location IDs are used system wide, and a coordinated configuration is recommended. It is highly recommended to use the same length for the location ID for all networked Altiserv systems. It may also be advantageous to use the same location IDs at all locations. For example, if the location ID for the Chicago office is 12 when dialed from both San Francisco and New York, users who travel will find it easier to work at multiple locations.

Use Caution Before Changing the Dialing Length

The dialing length can be changed without having to re-install or re-start AltWare IP. However, if this number is changed, the location IDs are all altered—so that it is advisable to keep the original length if it works well.

If you increase the location ID length, the number 0 is added to the front of the location IDs. For example, if you change the length from 2 to 3, location IDs 02 and 27 will become 002 and 027 respectively.

If you decrease the number of digits in the location ID, the last digit is dropped from location IDs. For example, Location ID 240 becomes 24. There is an exception to this truncation method: if the leading digit is 0, it is dropped. For example, 048 becomes 48.

Defining the IP Dialing Table

To access the IP Dialing Table window, select **System Configuration...** on the **Management** menu, then click the **IP Dialing Table** tab.

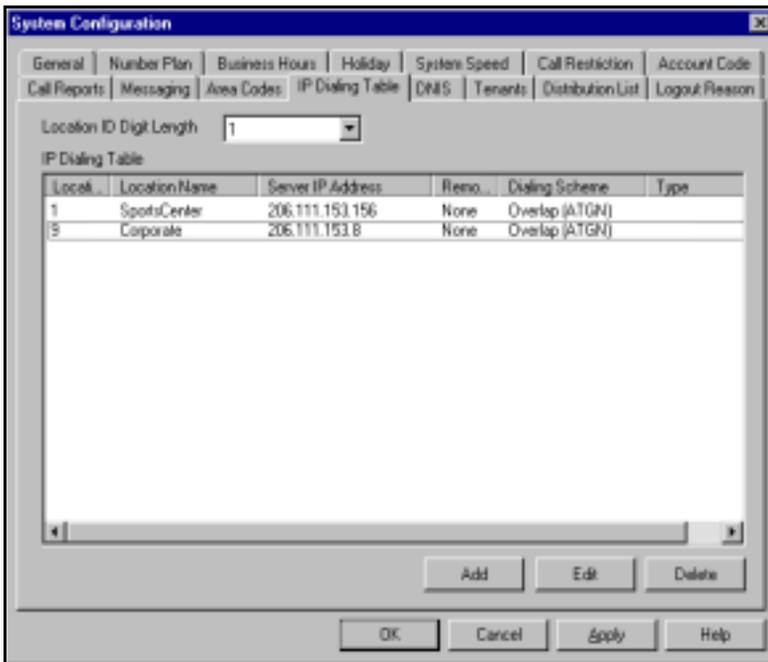


Figure 16. Dialing Table window, System Configuration

Setting the Location ID Digit Length

Set the length in the **Location ID Digit Length** drop-down list, noting the discussion about the length in the previous section.

Defining Remote Locations

To add a location, click the Add button to open an entry dialog box:



Define the attributes for the entry:

Parameter	Description
Location ID	A unique dialing number to connect to the remote location. The length of the number is of course the Location ID Digit Length described in “About the Location ID Digit Length” on page 156.
Location Name	A descriptive name of up to 15 characters to identify the location. This name may be used by Caller ID.
Server IP Address	The remote server’s address in one of the following formats: <ul style="list-style-type: none">• RFC assigned IP address (e.g. 100.100.100.100). IP addresses with prefixes of 10.0.0.0/8, 172.16.0.0/12 or 192.168.0.0/16 can only be used within private networks (Intranets).• Fully qualified DNS name (e.g., newyork.altigen.com), of up to 64 characters. This IP address format is recommended over DNS names, since with the IP address, the application does not need to resolve the name.

Parameter	Description
Remote Ext. Length	The length of extension digits at the remote location. Valid entries are None - 7, with “None” meaning not specified. Specifying the remote extension length is optional but highly recommended, since this information tells the system how long to wait for another entry before outpulsing (sending the digits).
Dialing Scheme	<p>Overlapping (ATGN) is best used with analog trunks to allow the terminal to omit part of the digits required to complete a call while buffering the remaining digits.</p> <p>Enbloc, used with digital (ISDN) trunks, allows the terminal to include all of the digits required to complete a call.</p>

Configuring DNIS Routing

When an incoming call comes through a trunk with DNIS or DID numbers, the system can route the call to the proper extension, Auto Attendant or operator based on the DNIS or DID number collected.

Note: DNIS supports only incoming T1, PRI, and analog DID trunks, and in the case of T1 and PRI DNIS works with incoming trunks that are *not* set up as tie trunks.

In order to locate an entry in the DNIS table for an incoming call, a full match is required. If there is no match in the **DNIS** routing table set up in this window, the system tries to match the number based on the DID number entered in the **General** page of **Extension Configuration** (see “Setting up Extensions” on page 219). If there is still no match, the system routes the call according to the **In Call Routing** page defined in **Trunk Configuration**.

To access DNIS routing, select **System Configuration...** on the **Management** menu, then click the **DNIS** tab.

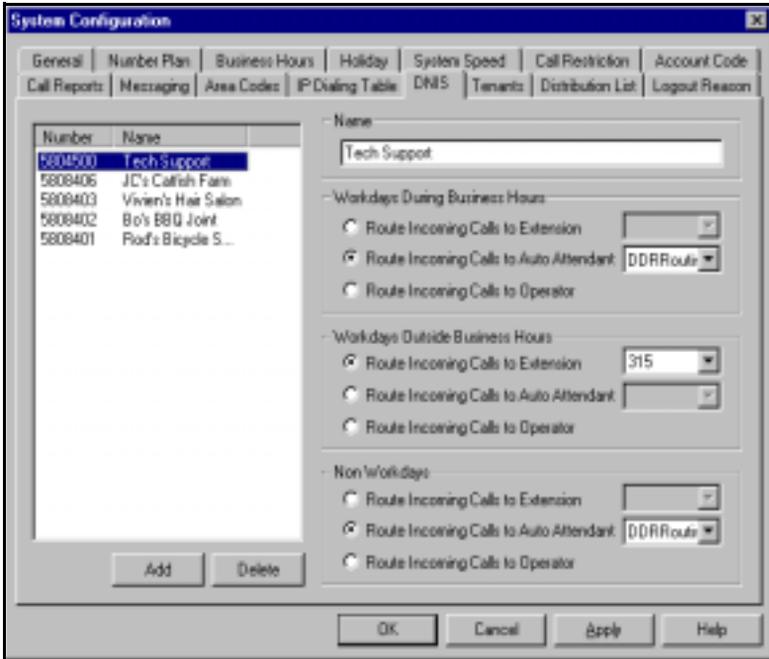


Figure 17. DNIS window, System Configuration

Adding and Deleting DNIS Route Entries

To add entries to the DNIS routing table, click the **Add** button. In the dialog box that appears, type in a **DNIS Number** and a descriptive **DNIS Name**, then click **OK**.

The number and name entries have the following requirements:

- The **DNIS Number** must be devoid of all characters except the numbers 0–9 (the hyphen is not accepted in this dialog box). For example, 2529876 is a good entry, but 252-9876 is not.
- The **DNIS Name** is descriptive and optional; it can be used to remind you about the nature of the number and routing. For example, you might give the 2529876 number the name, “Tech Support.”

To delete an entry, select it in the DNIS number list, then click **Delete**.

Defining the Routing

After adding an entry, you define it by first selecting it in the list. When you select an entry, its name and other defined attributes, if any, appear in the options at the right of the window. You can edit any of these attributes.

For each number, you can set routing for three distinct time periods defined in the Business Hours window (see “Setting Business Hours” on page 135):

- During Business Hours.
- Outside Business Hours.
- Non Workdays.

Within each of these three time slots, you have the following routing options for incoming calls:

- Route to a particular extension selected in the drop-down list.
- Route to a particular auto-Attendant number selected in the drop-down list.
- Route to the operator.

Using a Tenant Table

If several small businesses or groups want to share an Altiserv system, specific trunks can be assigned so that each company or group has its own set of extensions for outbound calling. Each business or group can be set up as a *tenant* in Altiserv, where you use the Tenants window to define the tenants, their call restrictions and call tracking.

The tenant IDs are matched on the one hand to extensions and on the other hand to trunks, so that extensions are matched to trunks, or, more precisely, extension tenant IDs are linked to trunk tenant IDs. This configuration eliminates the need to set up separate access codes for each tenant. Instead, all extensions can dial the *Route Access code* for outbound calls.

For information on Route Access, see “Assigning Trunk, IP Trunk, & Route Access” on page 134.

Using a Tenant Table

To access the Tenants window, select **System Configuration...** on the **Management** menu, then click the **Tenants** tab.

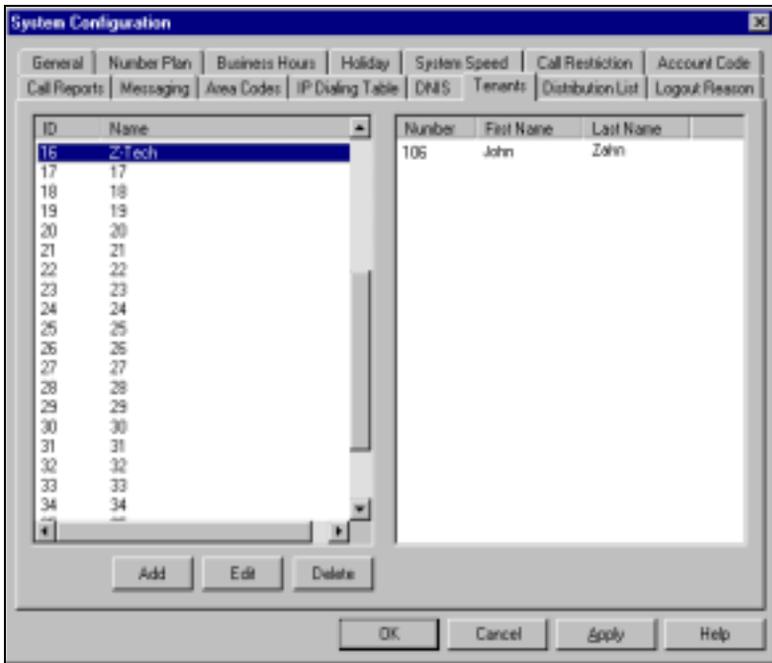


Figure 18. Tenant window, System Configuration

Configuring the Tenant Table

Configuring the tenant table involves first adding entries to the tenant list, then using Extension Configuration and Trunk Configuration to assign extensions and trunks, respectively, to tenant IDs.

To create tenant entries:

1. In the Tenant window, click the **Add** button to open a small Tenant Configuration dialog box.
2. In the dialog box, type in the **Tenant Name** and click **OK**. Then click the **Apply** button in the Tenant window. The tenant ID is assigned automatically and sequentially.
3. Repeat the above steps for all the tenants you want to add, then click **OK** to close the System Configuration window.

To assign extensions to tenant IDs:

1. Select **Extension Configuration...** on the **Management** menu to open the Extension Configuration General window.
2. For each extension you want to assign to a tenant ID:
 - a. In the Extension list, select and highlight the extension you want to assign to a tenant ID. Each extension can be assigned to only one tenant ID.
 - b. Select a tenant ID in the **Tenant** drop-down list under Personal Information, then click **Apply**.
3. Repeat the previous step for each extension you want to assign. When you're done, click **OK** to close the Extension Configuration window.

To assign trunks to tenant IDs:

1. Select **Trunk Configuration...** on the **Management** menu to open the Trunk Configuration General window.
2. For each trunk you want to assign to a tenant ID:
 - a. In the trunk list, select and highlight the trunk you want to assign to a tenant ID.
 - b. Select a tenant ID in the **Tenant Selection** drop-down list, then click **Apply**.
3. Repeat the previous step for each trunk you want to assign. When you're done, click **OK** to close the Trunk Configuration window.

Modifying the Tenant Table

To delete a tenant from the tenant window:

Highlight the ID number and click **Delete**.

If you delete a tenant ID that has been assigned to an extension or to a trunk, the extension and trunk assignments are reset to N/A (no assignment).

To edit the tenant name:

Double-click the name in the Tenant window (or select the name and click Edit), then change the name in the dialog box that appears.

To change the extension-to-tenant ID assignment:

Open the Extension Configuration General window, as discussed in the steps on the previous section under “To assign extensions to tenant IDs:,” and use the **Tenant** drop-down list to change the tenant ID assigned to any extension.

If a tenant ID is already assigned, you must change or remove the assignment from the old extension before you can assign it to a new one.

Note: If an extension is assigned to **N/A** in the **Tenant** drop-down list, the extension is able to access all trunks, even though the trunks have been assigned to tenants.

To change the trunk-to-tenant ID assignment:

Open the Trunk Configuration General window and use the **Tenant Selection** drop-down list to change the tenant ID assigned to any trunk.

Note: If a trunk is assigned to **N/A** in the **Tenant Selection** drop-down list, the trunk is accessible to all extensions, even though there are tenant assignments.

Creating Distribution Lists

The System Distribution Lists provide for forwarding voice mail messages to multiple recipients defined as list members. To forward a voice mail to all list members, a user need only enter the two-digit ID instead of entering numerous individual extensions.

You can create up to 100 distribution lists, each composed of up to 64 extensions. The extension list member can represent another distribution list.

Note: The *system* distribution lists discussed here are different from the *extension* distribution lists which are configured through the phone sets or the Altiview or AltiaAgent user applications.

To access the Distribution List window, select **System Configuration...** on the **Management** menu, then click the **Distribution List** tab.

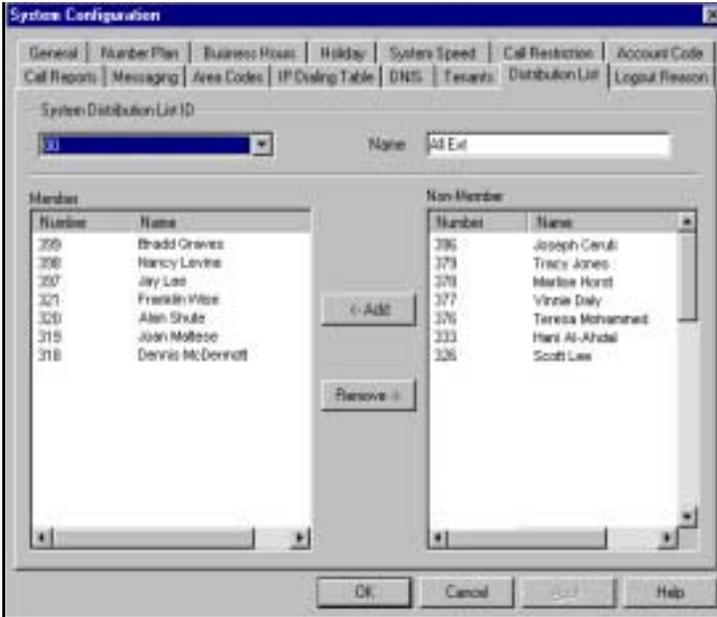


Figure 19. Distribution List window, System Configuration

Defining a Distribution List

1. In the Distribution List window, select an ID (0 – 99) in the **System Distribution List ID** drop-down list.

The list name, if any, now appears in the **Name** box; the members of the list are now displayed in the **Member** box, and other available extensions are displayed in the **Non-Member** box.

2. To give the list a name or change the existing name, type a descriptive name into the **Name** box.
3. To **add** a member, select the name(s) in the **Non-Member** list and click the **Add** button to move it to the **Member** list.

To **remove** a member, select the name(s) in the **Member** list and click the **Remove** button to move it to the **Non-Member** list.

You can select multiple names by using Ctrl-Click.

4. Click **Apply** to save your changes, or click **OK** to save and close the System Configuration window.

Setting Logout Reason Codes

In a workgroup environment, logout reason codes allow agents to specify why they are signing off from the workgroup, and the manager can view that information. If logout reasons are required, the system requests a reason at logout from the phone set and from the AltiAgent application.

The Logout Reason window allows you to enable or disable the required entry of a logout reason, and it provides for defining up to 20 reason codes. A logout history can be tracked and stored for future analysis.

To access the Logout Reason window, select **System Configuration...** on the **Management** menu, then click the **Logout Reason** tab.

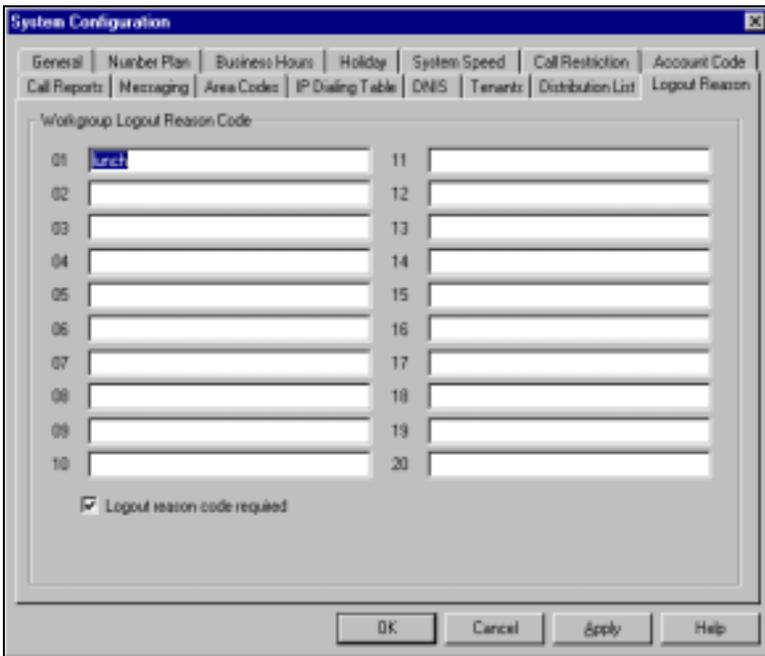


Figure 20. Logout Reason window, System Configuration

To require logoff reasons, check the **Logout reason code required** check box. If you want not to require reason codes, deselect the check box.

To define reason codes, type the associated reason into the text box next to the code you want to associate with the reason.

Board Configuration

Board attributes and functions are accessible in the Boards window in the AltWare desktop.



Figure 1. Board window

For the board you want to configure, double click the board's icon in the **Boards** window to open the **Board Configuration** window.

Important: To implement some board configuration changes, you must shutdown and restart AltGen Switching Services by first choosing Shutdown Switching on the Services menu, which also closes AltAdmin, and then restarting AltAdmin.

Using the Triton Resource Board

The Triton Resource Board is a PCI bus telephony board that provides the ability for one extension to monitor other extensions (as set up in the Extension Configuration Monitor List, discussed in “Setting Up Monitor Lists” on page 257), and the barge-in ability. The Resource Board requires no complex configuration; you install it and run it. The Board ID must be the range of 0 to 15, and each Altiserv system supports a maximum of 2 boards.

Once installed and the system powered up, the board is displayed in the Board View window on the AltAdmin desktop, and you can use the barge-in and silent monitoring features without further board configuration.

Without the Resource Board installed, supervisors will hear an error tone if they try to perform a monitoring or barge-in operation.

Configuring the Quantum Board

Double click the board’s icon in the **Boards** window to open the **Board Configuration** window.

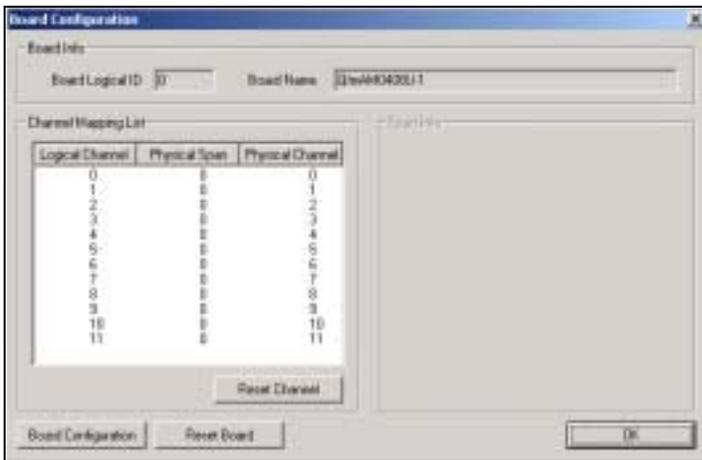


Figure 2. Board Configuration window (Quantum Board)

Use the Board Configuration window for the Quantum board to view the following attributes:

Parameter	Description
Board Info	<p>Board Logical ID: assigned by AltiServ.</p> <p>Board Name: the type of board installed in the system and board ID.</p> <p>Note: For Quantum boards in a <i>Windows 2000 system</i>:</p> <ul style="list-style-type: none"> • the physical board ID 0 is not supported • the valid physical board IDs are 1–15
Channel Mapping List	<p>Logical Channel, Physical Span, and Physical Channel for the entire board.</p> <p>To reset the channel, select the channel to reset and click the Reset Channel button, then click OK.</p> <p>Note: Depending on whether the channel is a line or a trunk line, double clicking a channel in this window invokes either a Line Properties window (see “Quantum Line Properties” on page 228, or a Trunk Line Properties window (see “Quantum Trunk Properties” on page 202).</p>
Span Info	Not available for Quantum boards.
Board Configuration	Opens a diagnostic dialog box.



Figure 3. *Quantum Board Debug*

You can send a debug string to the board, or you can do a DSP Dump, Memory Dump, or FMIC Dump.

Configuring the Triton Analog Station Board

Parameter	Description
Reset Board	Resets the board, after you confirm by accepting a warning that <i>resetting a board will disconnect all calls in progress on that board.</i> Important: Be sure to inform all users before resetting a board.

Configuring the Triton Analog Station Board

Double click the board's icon in the **Boards** window to open the **Board Configuration** window.

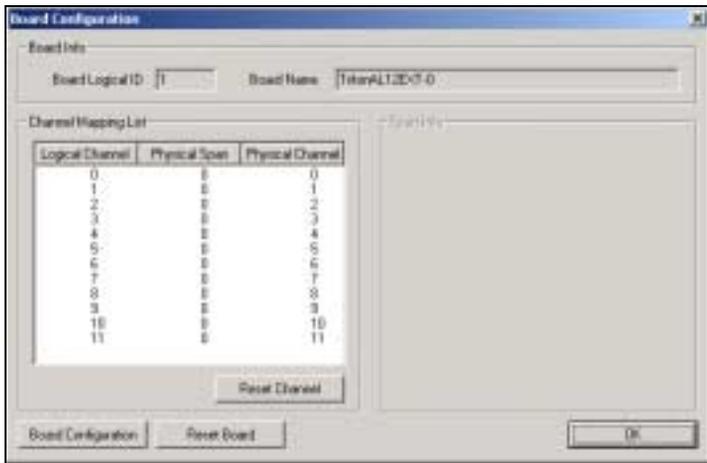


Figure 4. Board Configuration window (Triton Analog)

Use the Board Configuration window to view the following attributes:

Parameter	Description
Board Info	Board Logical ID: assigned by Altiserv Board Name: the type of board installed in the system and board ID. Note: This is informational only and cannot be edited.

Parameter	Description
Channel Mapping List	<p>Shows the board Logical Channel, Physical Span, and Physical Channel.</p> <p>To reinitialize channels, select the channel to reset and click the Reset Channel button, then click OK.</p> <p>Note: This is informational only and cannot be edited.</p> <p>Note: Double clicking a channel in this window invokes a channel configuration window. Refer to the Line Properties button in Extension Configuration. See “Triton Analog Station Line Properties” on page 229.</p>
Span Info	Not available for Triton Analog Station boards.
Board Configuration	Displays the board’s serial number.
Reset Board	<p>Resets the board, after you confirm by accepting a warning that <i>resetting a board will disconnect all calls in progress on that board</i>.</p> <p>Important: Be sure to inform all users before resetting a board.</p>

Configuring the Triton Analog Trunk LS/GS and LS Boards

New with AltiWare OE 4.5 is the Triton Analog Trunk board. This is a long form factor PCI telephony card that supports 12 trunks, and is available in two models; loop start/ground start (LS/GS) and loop start (LS). Both models have the same features regarding LS. The LS/GS board is required when ground start trunks may be required.

Configuring the Triton Analog Trunk LS/GS and LS Boards

Double click the board's icon in the **Boards** window(see Figure 1) to open the **Board Configuration** window.

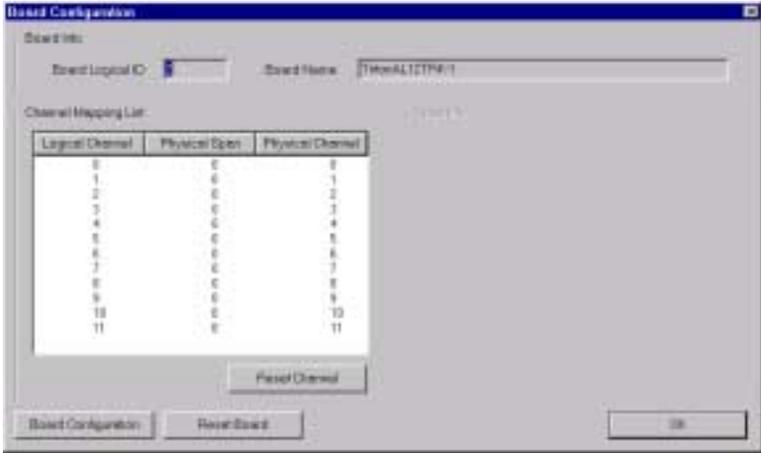


Figure 5. Board Configuration window (Triton Analog Trunk)

The Board Configuration window contains the following attributes:

Parameter	Description
Board Info Group	Board Logical ID: assigned by Altiserv Board Name: the type of board installed in the system and board ID. Note: This is informational only and cannot be edited.
Channel Mapping List Group	Shows the board Logical Channel , Physical Span , and Physical Channel . To reinitialize channels, select the channel to reset and click the Reset Channel button, then click OK . Note: This is informational only and cannot be edited. Note: Double clicking a channel in this window invokes a channel configuration window. See “Triton Analog Trunk LS/GS and LS Properties” on page 205.
Span Info	Not available for Triton Analog Trunk LS/GS and LS boards.

Parameter	Description
Board Configuration	Displays the board's serial number.
Reset Board	Resets the board, after you confirm resetting by accepting a warning. Important: Resetting a board will disconnect all calls in progress on that board! Be sure to inform all users before resetting a board.

Configuring the Triton VoIP Board

Voice over IP for AltiWare OE

AltiWare OE includes the option for Voice over IP (VoIP) functionality, which in previous releases required the installation of AltiWare IP software.

VoIP for AltiWare OE runs on an H.323 platform that allows voice calls to be made through an IP network. It includes an integrated VoIP gateway to convert voice calls into IP packets and transmit them through the IP network. It also has the capability of networking multiple AltiServes into a virtual PBX network. This enables calls to be made through the IP network which allows for significant savings in toll charges.

Triton VoIP Board

The Triton VoIP board is used to provide voice processing resources for AltiWare OE, similar to the way Quantum telephony boards are used for analog trunks and extension lines. Unlike the Quantum telephony boards, however, only IP trunks are provided on the Triton VoIP board. AltiWare VoIP uses DSP engines residing on the Triton VoIP board to perform the voice processing functions needed for H.323 devices. Quantum and Triton boards are connected via MVIP connectors.

Features

The following features are automatically enabled during AltiWare OE installation.

PCI Plug and Play

Triton VoIP boards fit into standard PCI slots. Once installed, it is recognized by AltiWare OE and appears on the Boards window of AltiWare Administrator.

Device Driver

A kernel mode device driver is implemented for the Triton VoIP board. The device driver provides access to resources on the Triton VoIP board to applications.

Port Specifications

See *Chapter 2, System Limitations*, for limitations on configuring Triton VoIP boards and ports.

Network Configuration Guidelines for VoIP

Real-time applications such as voice communications require a networking environment that meets certain requirements to deliver and maintain good voice quality. The following network configuration guidelines are highly recommended when using AltiWare's VoIP features.

ISP/Intranet Quality of Service (QoS)

- If you subscribe to the public IP network or use your own Intranet, make sure the maximum network delay is less than 150 milliseconds.
- Also, the typical packet loss rate should be less than 5 percent.

WAN Bandwidth

- If you are running G.723.1 compression, you should reserve 17 kbps WAN link bandwidth for each channel.
- You should reserve a minimum of 75 kbps WAN link bandwidth for each IP G.711 channel.
- When a small data application (e.g. one FTP transfer session) is running across the same WAN as AltiWare IP, make sure bandwidth is reserved for data traffic. An example would be, if you have 64 kbps WAN link, you can run one G.723.1 session concurrently with one FTP file transfer session, provided that the router fragments each TCP packet to 500 bytes.

- The Jitter Buffer should be adjusted according to the bandwidth allocated to data traffic. For example, a long Ethernet packet (approximately 1500 bytes) traversing through a WAN which is allocated with 256 kbps of data traffic bandwidth will take about 50 milliseconds. The Jitter Buffer value should be set to this WAN link transmission delay plus the typical network jitter delay. Refer to “Triton VoIP Trunk Configuration” on page 207 for more information on how to configure the Jitter Buffer.
- If you have heavier data applications running concurrently, the bandwidth reserved for data traffic should be increased.
- If your router supports multilink or TCP fragmentation, configure your WAN router to use smaller packet sizes, e.g. 500 bytes.

WAN Router Configuration

The router which connects your LAN and the WAN should support priority queuing.

Configure the router so that the IP/UDP packets being sent to and from an IP station have higher priority than the packets generated by other stations on the same network. Please consult your router manufacturer for more information on setting up this configuration.

Firewall Configuration

Please note the following very **important** guidelines when working with a firewall on your network:

- If a firewall is used to protect your network access security, reconfigure the firewall to open up the following TCP and UDP ports to the IP system’s IP address:
 1. 49152 to 49159 for 1 board, *or* 49152 to (49151 + # of board + *8) for more than 1 board
 2. TCP Port 1720

This allows IP’s voice and H.323 packets to pass through the firewall freely. If the firewall supports H.323 protocol, configure the firewall using H.323 instead of opening up the specific ports.

- Ensure that the rules to permit IP’s H.323 traffic are at the beginning of your access filter list. This will minimize the delay of latency-sensitive voice packets. This is **ESPECIALLY** important with long access lists and/or slow routers.

Network Using NAT

If you plan to connect to your AltiServ system via the Internet and your router or Internet access provider is using Network Address Translation (NAT), please ensure that your NAT implementation supports H.323.

- You are probably using NAT if **both** of the following conditions apply:
 - Your AltiServ server's IP address matches any of the following numbers (where x is any number from 0-255):
 - 10.x.x.x
 - 172.16.x.x to 172.32.x.x
 - 192.168.x.x
 - You are able to connect to the Internet directly **WITHOUT** using a proxy or socks server.
- Contact your router/firewall vendor to obtain a software update for your networking equipment, or obtain routable address space from your Internet provider. If you are unsure whether or not you are using NAT, contact your router/firewall vendor or Internet provider.

AltiGatekeeper

- If there are two network cards on a multi-home host, when configuring the network cards, you should only set the default gateway for the public interface network card. **Leave the default gateway for the private network interface card empty.**

Setting Up an AltiServ-to-AltiServ IP Network

Two or more AltiServ systems can be networked together to provide extension-to-extension connections via IP trunk calls. Users may dial a remote AltiServ's auto attendant or direct dial to an extension, without having to dial out through the PSTN. A diagram illustrating a multiple AltiServ-to-AltiServ connection is provided below and is referred to as an example throughout the configuration instructions below.

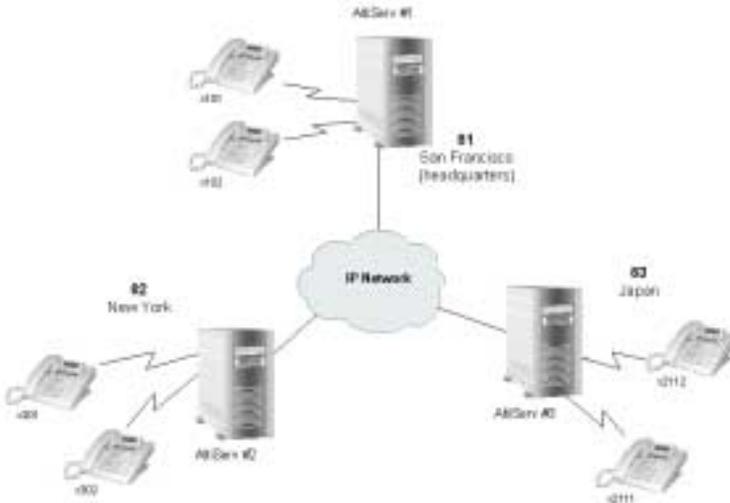


Figure 6. AltiServ-to-AltiServ Connection

Follow the steps below to configure IP trunks for an AltiServ-to-AltiServ tie-trunk line connection:

1. Confirm that the correct number of Triton VoIP boards are installed and connected by checking the **Boards** window on the Main Window of AltiWare Administrator. Refer to “Boards View Window” on page 121 for more details about this window.
2. Assign the IP trunk access code on the **Number Plan** tab window of **System Configuration**. See “IP Trunk Access” on page 134.
3. Configure general trunk parameters on the **General** tab window of **Trunk Configuration**. See “Setting General Trunk Attributes” on page 199.
4. Configure the dialing plan for connection to remote AltiServ systems on the **IP Dialing Table** tab window of **System Configuration**. Set

Configuring the Triton VoIP Board

the **Number of Dialed Digits** to “None.” Refer to “Defining the IP Dialing Table” on page 157.

5. Set the VoIP codecs so that servers use the same codec. See “Setting VoIP Codecs” on page 225.
6. Repeat steps 1 through 5 for all local and remote AltiServ systems that are to be networked via tie-trunk line connection.

This completes the AltiServ-to-AltiServ network connection. Your organization is now ready to make and receive IP trunk calls through public or private IP networks.

Note: Extension users should refer to the *AltiView and AltiServ User Guide* for instructions on how to dial a remote AltiServ. Also, be sure to distribute the Remote Locations Dialing Chart with your organization’s unique dialing plan. This chart is available in the *AltiView and AltiServ User Guide*.

Board Installation

Double click the board’s icon in the **Boards** window(see Figure 1) to open the **Board Configuration** window.

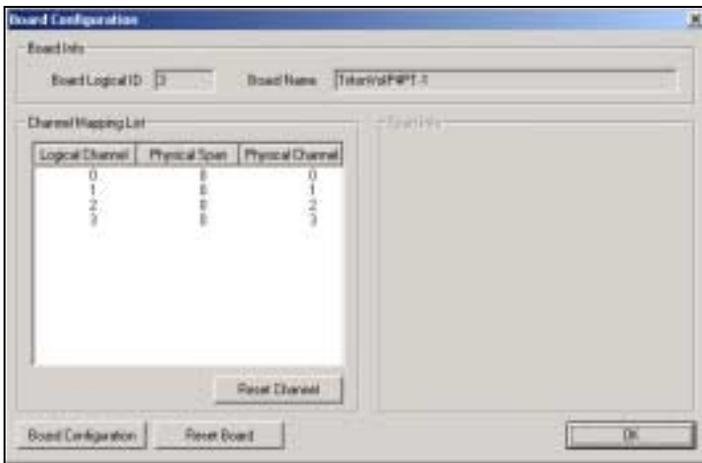


Figure 7. Board Configuration window (VoIP Board)

The **Board Configuration** window for the Triton VoIP board displays the same options as the Quantum board, which are discussed in “Configuring the Quantum Board” on page 168.

The **Board Configuration** button invokes the **Triton VoIP Trunk Properties** window, which displays the board serial number and displays line settings. Refer to “Triton VoIP Trunk Configuration” on page 207 for more detail.

Troubleshooting—Common Symptoms and Solutions

The following are some of the most common problems you may encounter and a list of steps to troubleshoot and resolve these problems.

Poor Voice Quality

When voice quality is poor, try the following:

1. **Perform a Loop-Back Test.** Call yourself by dialing out and dialing back into yourself. If you don't have any problems performing this test, the problem is most likely in the network or at the remote site.
2. **Check Traffic Between AltiWare IP Stations.** Open the **IP Trunk Current Traffic Statistics** window and the **AltiWare IP Cumulative Traffic Statistics** window in AltiWare Administrator or AltiAdmin to view network traffic.
3. **Check the RTP and RTCP Settings.** Make sure UDP port numbers 49152-49199 are not assigned to other applications. RTP/RTCP is the acronym for Real-Time Transport (Control) Protocol, a transport protocol for real-time applications used to transport packetized voice packets over the IP network.
4. **Check Network Configurations.** Follow all network configuration guidelines provided under “Network Configuration Guidelines for VoIP” on page 174. Make sure the router, WAN bandwidth, and Jitter Buffer are configured properly.

Cannot Make a Connection

1. **Check Network Connectivity** using “ping.”
2. **Check Network Firewall Settings.** See “Network Configuration Guidelines for VoIP” on page 174 for more details.
3. **Check IP Address of Destination System**
4. **Check the RTP and RTCP Settings.** Make sure UDP port numbers 49152-49199 are not assigned to other applications. RTP/RTCP is the acronym for Real-Time Transport (Control) Protocol, a transport

protocol for real-time applications used to transport packetized voice packets over the IP network.

5. **Check the AltiWare IP Dialing Table for Dialed Digits Length.** Refer to “Defining an IP Dialing Table” on page 156.
6. **Check if Called Extension is a Workgroup or has Multiple Call Waiting Enabled.** When the called party is a workgroup pilot number or has Multiple Call Waiting enabled, the caller is placed on hold and hears ringback or music.

IP Trunk Does Not Appear in Trunk View

When an IP trunk doesn't appear in the Trunk View, there are two possible causes:

1. **Device Driver is Not Running** - check the device driver. Make sure it's installed and working properly.

Windows NT 4.0 does not support Plug and Play. Therefore, the PnP ISA Enable Driver (PNPISA.SYS) must be installed if it is not installed already. Refer to the Microsoft Web site for installation instructions.
2. **Triton VoIP Board is Not Installed Properly** - Refer to the *Quick Installation Guide* for more details on proper installation of the Triton VoIP board.

Configuring the Triton T1/PRI Board

AltiWare OE 3.5 and higher includes the option for digital T1 or PRI (Primary Rate Interface) functionality. Through AltiAdmin, the Triton T1/PRI board can be configured for either T1 or PRI.

Both T1 and PRI carry 24 pulse code modulation (PCM) signals using time-division multiplexing (TDM) at an overall rate of 1.544 Mbps. Voice T1 provides twenty-four 64K channels with robbed bit signaling. PRI provides twenty-three 64K channels, using one 64K channel for D channel messaging.

The Triton T1/PRI board is used to provide voice processing resources for AltiWare OE, similar to the way Quantum telephony boards are used for analog trunks and extension lines. AltiWare OE uses DSP engines residing on the Triton T1/PRI board to perform the voice processing functions needed for either T1 or PRI service. Quantum and Triton boards are connected via MVIP connectors.

For information on how to install Triton T1/PRI boards, refer to the *Quick Installation Guide* provided with every board package.

Service Parameters for T1

To subscribe to T1 service, certain parameters are required to establish service. The information provided below identifies the recommended and supported parameters for T1 service.

T1 Service Request Information

When ordering T1 service, provide the following service request information:

Equipment Information

Product Manufacturer - AltiGen Communications, Inc.

Product Name - AltiServ PBX Phone System

CSU/DSU - ADTRAN T1 ACE (recommended) or other CSU/DSU

Technical Information for T1 with Voice

Signaling Protocol:

- E&M Wink Start (recommended)
- E&M Immediate Start
- Ground Start
- Loop Start (not recommended)

Trunk Type:

- DID
- 2-Way DID (recommended)
- DOD

Framing:

- Super Frame (SF)/D4
- Extended Super Frame (ESF) (recommended)

Line Coding:

- Alternate Mark Inversion (AMI)
- B8ZS (recommended)

DNIS, Caller ID - DTMF (Dual Tone Multi-Frequency)

Physical Termination - RJ-48X or RJ-48C

Wire: 4 wires

800 Service: you decide

Termination Impedance - 100 ohms

Type of Registered Services Provided

BN 1.544 Mbps SF without power

DN 1.544 Mbps SF B8ZS without power

1KN 1.544 Mbps ANSI ESF without power

1SN 1.544 Mbps ANSI ESK, B8ZS without power (recommended)

Service Order Code

SOC 6.0P AS.2

T1 Channel Assignment

Trunk Type: In, Out, or 2-Way (recommended)

Channels Assigned: 24 (Enter partial channels if you wish to subscribe to both voice and data service.)

Hunting: Most Idle, Least Idle, Ascend, Descend

DNIS Digits/Signal: 3/DTMF (can be 3 to 10 digits)

Caller ID Signal: DTMF, if available (Not every service provider provides Caller ID over T1 lines.)

CSU/DSU Requirements

The CSU (channel service unit) is a device used to connect a digital trunk line coming in from the phone company to the PBX. A CSU can terminate signals, repeat signals and respond to loopback commands sent from the central office.

Service Parameters for PRI

To subscribe to PRI service, certain parameters are required to establish service. The information provided below identifies the recommended and supported parameters for PRI service.

PRI Service Request Information

When ordering PRI service, provide the following service request information:

Equipment Information

Product Manufacturer - AltiGen Communications, Inc.

Product Name - AltiServ PBX Phone System

CSU/DSU - ADTRAN T1 ACE (recommended) or other CSU/DSU

Technical Information for PRI with Voice

Switch Type:

- 5ESS (recommended)
- DMS (recommended)
- NI2 (recommended)
- 4ESS
- MEGACOMM

Framing:

- Super Frame (SF)/D4
- Extended Super Frame (ESF) (recommended)

Line Coding:

- Alternate Mark Inversion (AMI)
- B8ZS (recommended)

Physical Termination: RJ-48X or RJ-48C

Wire: 4 wires

PRI Channel Assignment

D Channels Assignment: 24th channel (channel ID 23)

Note: AltiServ can configure any channel in a PRI span to be the D channel. The default setting is the last channel. Every span should select a D channel within the span. OE 3.5A and higher does not support shared D channel (NFAS) or back up D channel.

Hunting: Most Idle, Least Idle, Ascend, Descend

Configuring the Triton T1/PRI Board

DNIS Digits: can be 3 to 10 digits

CSU/DSU Requirements

The CSU (channel service unit) is a device used to connect a digital trunk line coming in from the phone company to the PBX. A CSU can terminate signals, repeat signals, and respond to loopback commands sent from the central office.

Board Configuration

Double click the board's icon in the **Boards** window(see Figure 1) to open the **Board Configuration** window.

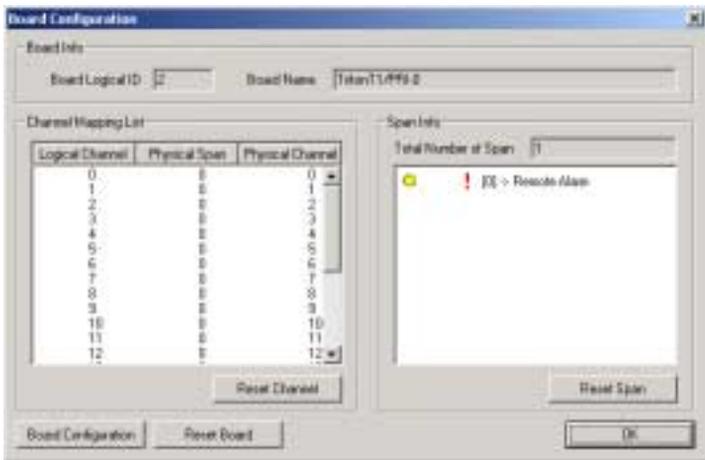


Figure 8. Board Configuration window (Triton T1/PRI Board)

The **Board Configuration** window for the Triton T1/PRI board displays the same options as the Quantum board, which are discussed in “Configuring the Quantum Board” on page 168, but there are additional options available. The Board ID must be in the range 0–3.

- The **Board Configuration** button invokes a configuration dialog box

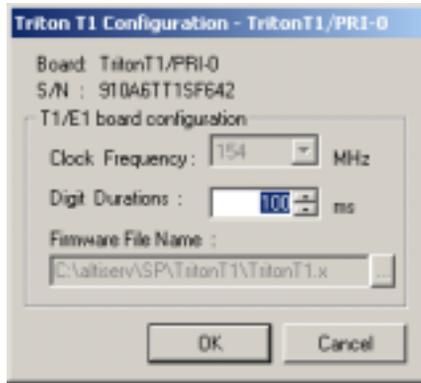


Figure 9. Triton T1 Configuration dialog box

This dialog box displays the board serial number and allows you to reconfigure the **Clock Frequency**, **Digit Duration**, and the **Firmware File Name**.

- The **Span Info** window displays the **Total Number of Spans** on the board and the status of the span in the Span Info window. To reset the span, click the **Reset Span** button. Double clicking a span in this window will invoke a configuration window, as discussed in the following section.

See “T1 Clocking” on page 190 and the Status Messages table beginning in the next section.

Triton T1 Configuration - Triton T1/PRI Dialog Box

Double clicking the span line for a Triton T1 board in the **Span Info** window invokes a **T1/PRI Configuration** dialog box.

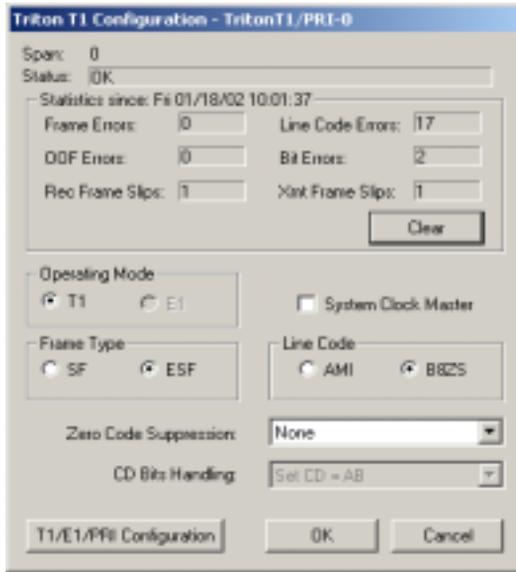


Figure 10. Triton T1/PRI Configuration dialog box

Reading the Status Messages

If the span is working, the Status line displays OK. This status line is updated every 3 seconds. If there is an error, a message is displayed. The following table lists the types of error messages and the appropriate actions.

Table 1: Span Status Error Messages

Error Message	Meaning	Action
Hardware Failure - NO ANSWER	Major hardware problem. Board is not responding to commands.	Set board as MVIP master. Reset Board.
Hardware Failure - NO CLOCKS	No clock signal is detected on T1 interface drop.	Reset Board. If this does not work, board must be replaced.

Table 1: Span Status Error Messages

Error Message	Meaning	Action
HDLC Failure - NO HDLC FRAMES	HDLC = High level Data Link Control. No HDLC framing is detected on the selected D Channel. This is a PRI-specific issue.	Check with CO on D Channel usage for possible mismatch between your selection of D channel and CO's selection. OR CO may have locked D Channel. Contact CO to unlock.
Line Failure - NO SIGNAL (ALOS)	ALOS = Analog Loss of Signal	Check T1/PRI cable and change if necessary. If cable is okay, CO is not sending any signal. Contact CO.
Line Failure - BLUE ALARM (AIS)	AIS = Alarm Indicator Signal	CO is sending Blue Alarm. Contact CO.
Line Failure - YELLOW ALARM (RAI)	RAI = Remote Alarm Indicator	Cable is broken. If there are no frame slips, contact CO. If frame slips exist, set this board as the master.
Setup Failure - NO VALID FRAME	No valid framing is detected.	Possible span mis-configuration (i.e., ESF is selected but the actual framing is SF, or vice versa). Check span configuration.
Setup Failure - RED ALARM (BPV)	BPV = Bi-Polar Violation	Location condition, equipment problem. For excessive BPV, check AMI/B8ZS setting.

Table 1: Span Status Error Messages

Error Message	Meaning	Action
Setup Failure - RED ALARM (LCV)	LCV = Line Code Violation	Check the MVIP bus master setting. OR Have CO perform a line test to check for a faulty cable or line.
Setup Failure - RED ALARM (OOF)	OOF = Out of Frame. Excessive frame errors.	Check the MVIP bus master setting. OR Have CO perform a line test to check for a faulty cable or line.
Clock Sync Failure - FRAME SLIPS'	Conflict between transmit and receive clocks. The MVIP bus mastership is set improperly.	Check MVIP bus master setting.

Reading the Statistics

The **Statistics** is an informational display of accumulated statistics (counters) for the errors that have occurred since the last system reboot or statistics clearing. There may be non-zero values when configuring the T1 span for the first time. You can clear these fields with the **Clear** button.

- **Frame Errors** - number of framing bit errors. In T1 mode, a framing bit error is defined as an incorrect FS-bit value. The counter is suppressed when framer loses frame alignment.
- **OOF Errors** - the Out Of Frame counter registers every time the T1 chip is forced to re-frame when receiving a frame with severe errors.
- **Rec Frame Slips** - the Receiver Frame Slips counter shows the number of frame slips for the receiver.
- **Line Code Errors** - Line Code Error is defined as an occurrence of a bi-polar variation or excessive zeroes.
- **Bit Errors** - Bit Errors are defined as a CRC-6 error in ESF, FT-bit error in SLC-96 and F-bit or sync bit error in SF.

- **Xmt Frame Slips** - Transmit Frame Slips counter shows the number of frame slips for the transmitter.
 - **Clear** button - use the **Clear** button to reset the statistics counters.
- Note:** For ideally synchronized systems, **Transmit** and **Receive Frame Slips** counters should be '0.' Continuous update of the frame slips counters means that transmit and receive frequencies are not equal. In this case, you should check the system and MVIP clock setup.

Setting the Configurable Options

- You can set the **Operating Mode** to either **T1** or **E1**.
- You can set the **Frame Type** to either **SF** or **ESF**.
SF (Superframe Format) consists of twelve (12) consecutive frames.
ESF (Extended Superframe Format) consists of twenty-four (24) consecutive frames.
- You can set the **Line Code** to either **AMI** or **B8ZS**.
AMI (Alternate Mark Inversion) is the line coding format in T1 transmission systems whereby successive ones (marks) are alternately inverted and sent with opposite polarity of the preceding mark. **B8ZS** (Binary 8 Zero Substitution) sends two violations of the bipolar line encoding technique, rather than inserting a one for every seven consecutive zeros.
- You can set the **Zero Code Suppression** to **None** (default setting), **Jam Bit 8**, **GTE** or **Bell**.
Zero Code Suppression inserts a "one" bit to prevent the transmission of eight or more consecutive "zero" bits; **Jam Bit 8** forces every bit 8 to a one; **GTE** Zero Code Suppression replaces bit 8 of an all zero channel byte to a one, except in signaling frames where bit 7 is forced to a one. **Bell** Zero Code Suppression replaces bit 7 of an all zero channel byte with a one.
- If you click the **T1/PRI Configuration** button you can set channels to either T1 or PRI, as discussed in "Setting up T1 or PRI Channels on the Triton T1/PRI Board" on page 191.
- You can set the **System Clock Master** *if* you have a back-to-back configuration and you want this span to be the master clock to the system. (Only one clock master should be selected in a back-to-back system.) See the following discussion.

T1 Clocking

Depending on the configuration of the T1 boards and span for your AltiServ system(s), the **System Clock Master** setup should be set according to the follow conditions:

- If all of the T1 boards are connected to an FXO (Foreign Exchange Office) or CO, the **System Clock Master** check box *must NOT be checked* for any of the T1 boards.
- If two AltiServ systems are connected back-to-back with a T1 span, the **System Clock Master** check box *must be checked* for only one of the T1 boards.
- If two T1 boards in the same AltiServ system are connected back-to-back with a T1 span, the **System Clock Master** check box *must be checked* for the T1 board that *has not been designated by the MVIP setting as the system's master clock to drive the MVIP bus*.
- If four T1 boards are in the same AltiServ system, where each pair is connected back-to-back with a T1 span:
 - The **System Clock Master** check box *must be checked* for one of the T1 boards from the first pair, that *has not been designated by the MVIP setting as the system's master clock to drive the MVIP bus*.
 - The other two T1 boards of the second pair must have its **System Clock Master** check box *unchecked*

Important: In all back-to-back cases, the **MVIP Clock Configuration** should be set to “**Manual**,” and the board *connected to the board configured as the back-to-back clock master must be designated* at the MVIP bus master.

Setting up T1 or PRI Channels on the Triton T1/PRI Board

Use the **T1/PRI Configuration** button (see Figure 10) to invoke the **T1/PRI Configuration** window. The Triton T1/PRI Board can be configured to either T1 or ISDN PRI through the configuration options within the window.

Note: In a tie-trunk configuration, set the trunks to “Out of Service” before changing the trunk type from T1 to PRI or vice versa. Otherwise, the system will generate garbage call records to your internal or external logger service. See “Setting General Trunk Attributes” on page 199 for details.

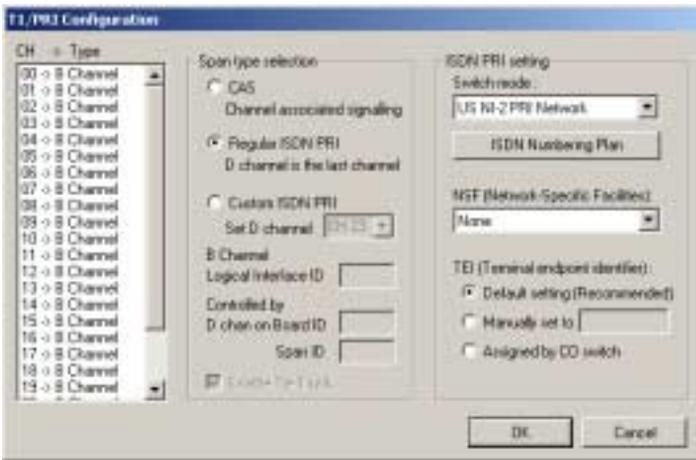


Figure 11. T1/PRI Configuration window

The **CH -> Type** list displays the channel types.

Setting the ISDN PRI Switch Mode

If you select a Span Type of Regular ISDN PRI or Custom ISDN PRI in the T1/PRI Configuration Window, use the following guidelines to set the ISDN PRI Switch mode.

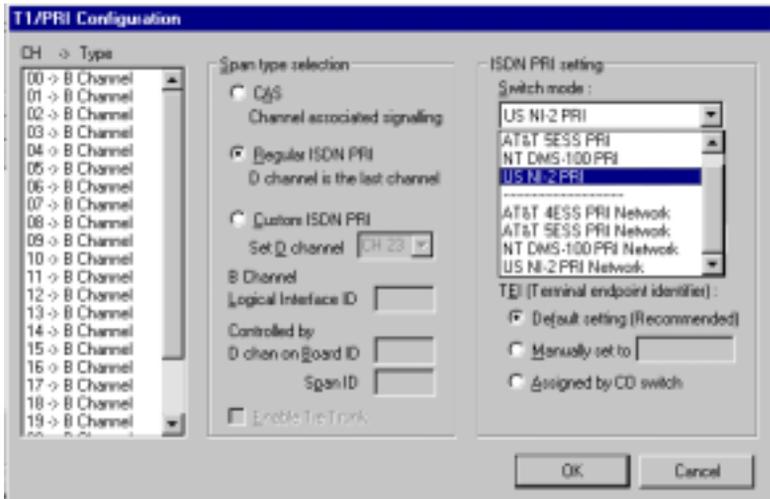


Figure 12. ISDN PRI Switch Mode

The top four settings are used for a connection to a CO switch:

- AT&T 4ESS PRI
- AT&T 5ESS PRI
- NT DMS-100 PRI
- N12-PRI (default)

The bottom four settings are used for a PRI tie trunk configuration where two AltiServ systems are connected back to back. In such a configuration, one AltiServ system must be configured as Network and the other as User. For example, set one to US NI-2PRI Network and the other to US NI-2PRI.

- AT&T 4ESS PRI Network
- AT&T 5ESS PRI Network
- NT DMS-100 PRI Network
- N12-PRI Network

Selecting Span Types

- **CAS** - select this option to associate all channels on the span to channel associated signaling.
- **Regular ISDN PRI** - select this option to indicate 23B+D ISDN PRI span and to designate the last channel as the D channel.
- **Custom ISDN PRI** - select this option to set the D channel to the desired location.

For future use: The following two settings will be used in conjunction with the Custom ISDN PRI setting in a future release:

— Set the **D Channel** using the drop-down list.

— Type in a **B Channel Logical Interface ID**

- **Enable Tie Trunk** - check this box to enable a tie trunk. Note that tie trunks must terminate to a system also configured as a tie trunk.

Configuring an ISDN Numbering Plan

The **ISDN Numbering Plan** button invokes the **PRI ISDN Numbering Plan** dialog box. This function allows you to select how AltiServ will identify and code the Called Number for six different types of calls. This coding instructs the CO on how to interpret the number being sent to it

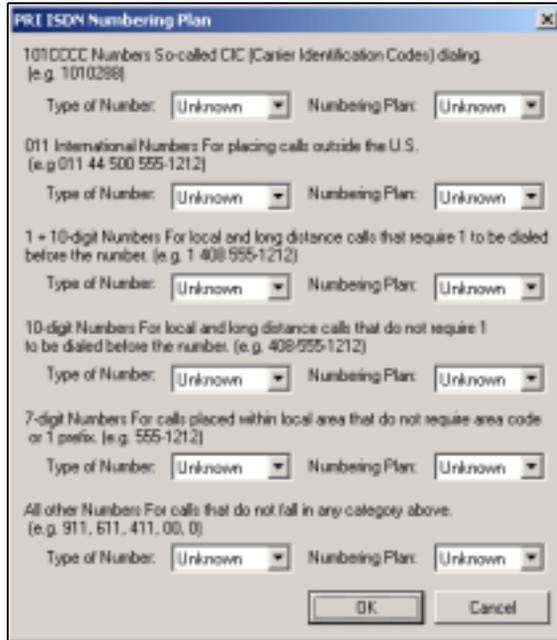


Figure 13. PRI ISDN Numbering Plan dialog box

The **PRI ISDN Numbering Plan** dialog box displays the six *classes* of numbers (call type) that can be sent to a CO:

- 101CCCC Numbers - CIC (Carrier Identification Codes) dialing.
- 011 International Numbers - for placing calls outside the U.S.
- 1+10-digit Numbers - for local and long distance calls that require dialing 1 before the number.
- 10-digit Numbers - for local and long distance calls that do not require 1 before dialing.
- 7-digit Numbers - for calls placed within the local area that do not require an area code or a 1 prefix.
- All Other Numbers - for calls that do not fall into any category above, i.e. 911, 311.

For each class, select the type of *number/numbering plan* from the drop-down list:

- **Type of Number:**
 - Unknown
 - International
 - National
 - Network Specific
 - Subscriber Number
- **Numbering Plan:**
 - Unknown
 - ISDN
 - National
 - Private

The setting 'Unknown' is used when the user or network has no knowledge of the numbering plan. In this case, the number digits field is organized according to the network dialing plan.

Setting the NSF

The **NSF (Network-Specific Facilities)** is used with PRI to instruct the CO to route a call to a specific carrier or long distance service. Use the drop-down list to identify the type of carrier service you wish to use for your ISDN PRI lines.

The choices in the list depend on the specific switch and your long distance service provider. An example of such service includes AT&T Megacom.

Note: If your CO requires specific NSF features to be present in the call setup packet, please contact AltiGen's Technical Support department with such information from the CO and they will help you configure it.

Setting a TEI

The **TEI (Terminal Endpoint Identifier)** defines which terminal device is communicating with the CO switch for a given message. PRI messages involve point-to-point configuration in which each side already knows the source of any message received. ISDN messages involve point to multi-point locations in which the source can only be identified by the TEI.

Select one of the following TEI settings:

- **Default setting** - this is the recommended setting.
- **Manually set to** - should always be set to 0. Typically, a zero (0) is used for TEI on a PRI connection. In some cases where a shared D channel is used, other TEI values might be required to identify which span will be used for a call.
- **Assigned by CO switch** - do not use this setting unless advised by your CO.

Troubleshooting—Common Symptoms

The most common problems when installing T1 or PRI services:

1. The service provider misconfigures your T1/PRI service or terminates your service improperly.
2. T1 is installed but not turned on because there is no termination device for a period of time.
3. T1 is turned on but channel is not in service.

AltiAdmin provides basic troubleshooting information in the T1 Span Configuration window, described in “Triton T1 Configuration - Triton T1/PRI Dialog Box” on page 186.

Several diagnostic tools are available that can help troubleshoot these situations, such as a T1 watcher (“T-Berd”) or a multimeter. For more information, check the Communication Technology Corp. web site at www.commtech.com.

Trunk Configuration



Trunk attributes and parameters are set using the **Trunk Configuration** window. The attributes and options available depend on the type of board and trunk.

Trunks that are out of service are automatically tested by the system every 15 seconds. Once the situation is corrected, the trunk will be brought back to service automatically. If none of the trunks are available when an outside call is placed, the caller will hear the system prompt: “All outside lines are busy, please try again later.”

There are three ways to access the **Trunk Configuration** window:

- Select the **Management** menu, then select **Trunk Configuration...** or,
- Click the **Trunk Configuration** icon on the Quick Access toolbar or,
- Double-click a trunk listing in the **Trunk View** window.

Reset		
Location	Type	Status
80:00	LS	not ready
80:01	LS	not ready
80:02	LS	not ready
80:03	LS	not ready
82:00	T1	not ready
82:01	T1	not ready
82:02	T1	not ready
82:03	T1	not ready
82:04	T1	not ready
82:05	T1	not ready
82:06	T1	not ready
82:07	T1	not ready
82:08	T1	shutting down
82:09	T1	not ready
82:10	T1	not ready
82:11	T1	not ready
82:12	T1	not ready
82:13	T1	not ready

Figure 1. Trunk View window

However you open the Trunk Configuration window, the **General** window appears.

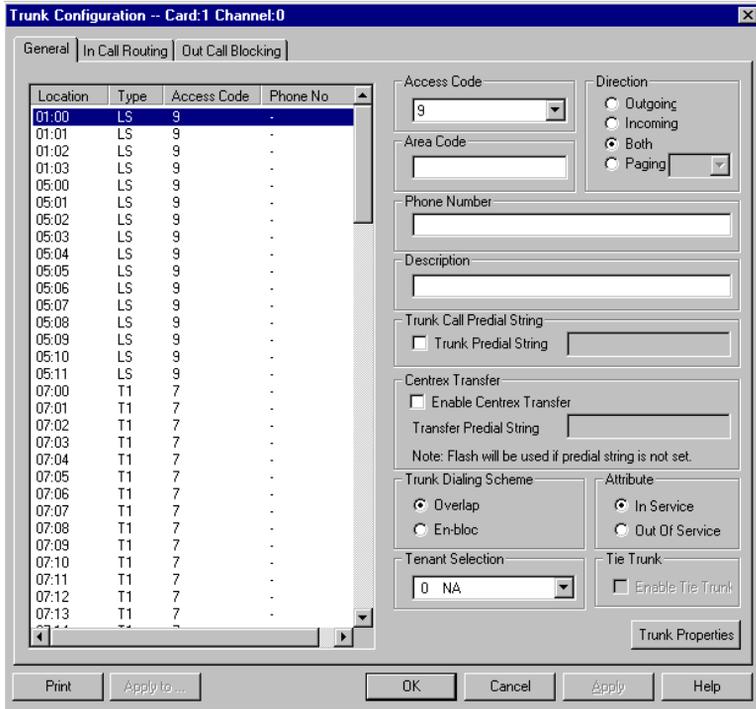


Figure 2. General window, Trunk Configuration

Selecting Trunks to Set Attributes

The title bar of the Trunk Configuration window displays the card and the channel of the selected trunk.

The list on the left shows all the configured trunks. The location format is the same as in the Trunk View window, that is, *slot:channel*—for example, channel 15 on the board in slot 1 is location 01:15.

When you select a trunk in this list, the options and parameters for the trunk appear in the settings in the right of the window.

Configuring One or Multiple Trunks

To customize trunk characteristics, you work on one trunk at a time. To apply the same configuration to multiple trunks, use the **Apply To...** button. This pops up a list of all trunks, with all of the trunks selected by default. Deselect the trunks you don't want to apply changes to, then click **OK**. (Note that you cannot use the mouse to drag over and select multiple items; you must use the Shift and Ctrl keys.) This applies changes to multiple trunks for **only the attribute or option that you changed**.

Setting General Trunk Attributes

Select the channel to view its current attributes, as discussed in the previous section. You can then set or change the following attributes. If an option is grayed out, it is not available for that type of trunk:

Attribute	Description
Access Code	<p>Access code to the selected trunk. If you need to use access codes other than 9, you must first set this up on the Number Plan window of System Configuration (“Setting a System Number Plan” on page 132). This option is not available for a DID trunk.</p> <p>Note: It is recommended that you set this value to “None” for trunks on 30-port VoIP boards. This will prevent users from directly accessing the 30-port boards—which use the G.711 codec only—for calls to Altiserv servers or other IP gateways that may require the G.723 codec. If you still want users to have access to this trunk for outgoing calls, you can set it up through Outcall Routing (see <i>Chapter 9, Out Call Routing Configuration</i>).</p>
Area Code	<p>The local area code for each trunk. Enter a three-digit area code. If left blank, the trunk assumes the home area code defined in the General window of the System Configuration window. <i>This configuration is for each trunk in the system and will negatively affect features such as Zoomerang if the area code is not configured properly.</i> This is not available for a DID trunk.</p>

Attribute	Description
Direction	<p data-bbox="452 215 953 269">The trunk direction can be Outgoing only, Incoming only, Both Outgoing and Incoming, or for Paging.</p> <p data-bbox="452 289 953 370">Outgoing and Both are not available on an analog Quantum DID trunk, which is an Incoming trunk. The Both option is the system default.</p> <p data-bbox="452 389 953 470">Note: When incoming calls are received on an Outgoing only trunk, they are immediately disconnected.</p> <p data-bbox="452 490 953 602">Paging is only available for analog (CO) trunks and is used for paging or broadcasting purposes. This option enables a third party paging device directly to the trunk port.</p> <p data-bbox="452 621 953 849">When this option is selected, the system assigns a default unused paging ID. You can assign a different ID in the drop-down list. The range of paging IDs are from 00 to 99, which allows AltiServ to be connected to up to 100 paging systems through trunks for multi-zone paging applications. If the manually selected paging ID is used by another trunk, the current paging ID is not changed.</p> <p data-bbox="452 868 953 980">The trunk paging is accessed using the Overhead Paging by Trunk (# 45 Feature Code). For example, a user dials '#4508' to connect to a paging system through the trunk with paging ID of 08.</p> <p data-bbox="452 1000 953 1112">The Overhead paging feature requires paging equipment to provide loop start CO trunk characteristics. This option <i>is not</i> supported on ground start trunks.</p> <p data-bbox="452 1131 953 1294">The Paging option and the Overhead Paging option (in "Audio Peripheral Configuration" on page 283) are different and independent of one another. The Overhead Paging option is to set up the audio out port of the Quantum board for use with the #44 overhead option built into the system.</p>
Phone Number	<p data-bbox="452 1321 953 1430">The phone number, without the area code, assigned to the location. If the wiring changes and a new phone number is assigned to the location, you must update the information in this field.</p>

Attribute	Description
Description	Descriptive information such as the company name for the assigned Phone Number, or appropriate agency if this trunk provides 911 access.
Trunk Dialing Scheme	<p>Overlap or En-bloc dialing.</p> <ul style="list-style-type: none"> • Overlap allows the terminal to omit part of the digits required to complete a call, while the remaining digits are buffered. Use Overlap Dialing for analog trunks and for T1 (robbed bit) for best results. • En-bloc allows the terminal to include all of the digits required to complete a call. Use En-bloc Dialing for digital (PRI-ISDN) trunks.
Centrex Transfer	Applies to analog and T1 trunks if the trunk is supported by Centrex. This option must be selected to forward calls to an outside number through a Centrex switch. If the Centrex provider requires a particular string to be sent before the dialed number, enter the string in the Transfer Predial String box. If no string is set as a predial string, FLASH is used.
Attribute	In Service makes the trunk available for use. Out of Service prevents the trunk from being used (for example, while performing maintenance).
Tenant Selection	The Tenant group assignment for the trunk, configured from the Tenant Table window in System Configuration, discussed in “Using a Tenant Table” on page 161. <i>If no tenant is selected, any extension can use this trunk to make an out call.</i>
Enable Tie Trunk	Allows hop-on and hop-off dialing for an ISDN/PRI, or T1 trunk. When this box is checked, any incoming call to the selected trunk can be sent with ANI/DNIS information. To use this feature, Hop-off must also be enabled under System Configuration Call Restrictions, as discussed in “Defining System Call Restrictions” on page 139. Also, the board must be configured to allow for tie trunks. See “Setting up T1 or PRI Channels on the Triton T1/PRI Board” on page 191.

Attribute	Description
Trunk Properties	Opens a dialog box that allows you to configure low-level, hardware-specific properties for each trunk. The options vary depending on the type of board and trunk; this is discussed in subsequent sections.

Quantum Trunk Properties

To configure a Quantum channel, select a Quantum channel from the trunk channels list in the Trunk Configuration window, then click the **Trunk Properties** button or double-click the list entry to view the **Quantum Trunk Line Properties** dialog box.

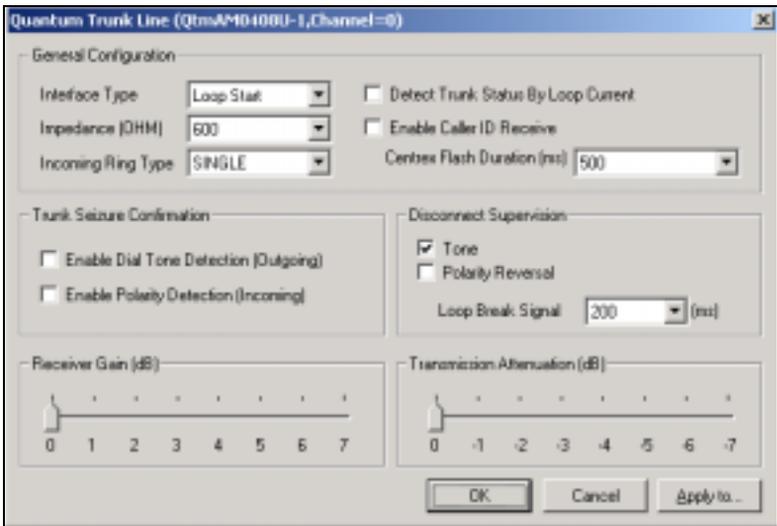


Figure 3. Quantum Trunk Line Properties window

Note that you can use **Apply to...** on this dialog box to apply changes to other trunks of the same type. See “Configuring One or Multiple Trunks” on page 199.

Quantum Trunk General Configuration

Parameter	Description
Interface Type	Select from: <ul style="list-style-type: none"> • Loop Start • Ground Start • DID (Wink Start)—available only if the selected trunk is a DID trunk
Impedance	The resistance of electrical current to alternating current, measured in OHMs . Impedance occurs when power or signal is transferred from one circuit to another. The setting options are: <ul style="list-style-type: none"> • 600 OHMs (domestic setting) • 900 OHMs (international setting, depending on the country) • External
Incoming Ring Type	Select single or double .
Detect Trunk Status By Loop Current	When selected, causes detection of the Quantum trunk status using a loop current.
Enable Caller ID Receive	Select for user to receive caller ID digits.
Centrex Flash Duration (ms)	Specifies the Flash Duration time in milliseconds, with a range from 50 ms to 1000 ms. This setting complements the Centrex Flash Support option in the General window for the trunk.

Parameter	Description
Trunk Seizure Confirmation	<p>Select from:</p> <ul style="list-style-type: none">• Enable Dial Tone Detection (Outgoing)—detection of outgoing dial tone.• Enable Polarity Detection (Incoming)—detection of incoming polarity. Polarity detection is used when the CO or the connected PBX provides polarity reversal on the tip and ring.
Disconnect Supervision	<p>Select from:</p> <ul style="list-style-type: none">• Tone—busy tone (reorder tone, fast busy tone, error tone, etc.) or dial tone (continuous tone, etc.). This should be used in conjunction with drop in loop current. For COs who cannot guarantee loop break, this may be the only option.• Polarity Reversal—a reversed battery signal. You can set the Loop Break Signal to either 200 or 600 ms.
Receive Gain	<p>Slide setting adjusts the incoming volume from -6 dB to 6 dB for every Triton Analog Trunk channel.</p> <p>The default setting is 0 dB, and it is highly recommended not to change this setting.</p> <p>Caution: Setting the volume too high will cause distortion in voice quality and/or missed DTMF digits.</p>
Transmit Gain	<p>Slide setting adjusts the outgoing volume from -6 dB to 6 dB for every Triton Analog Trunk channel.</p> <p>The default setting is 0 dB, and it is highly recommended not to change this setting.</p> <p>Caution: Setting the volume too high will cause distortion in voice quality and/or missed DTMF digits.</p>

Triton Analog Trunk LS/GS and LS Properties

To configure a Triton Analog Trunk LS/GS or LS channel, select a Triton Analog Trunk channel from the trunk channels list in the Trunk Configuration window, then click the **Trunk Properties** button or double-click the list entry to view the **Configuration** dialog box.

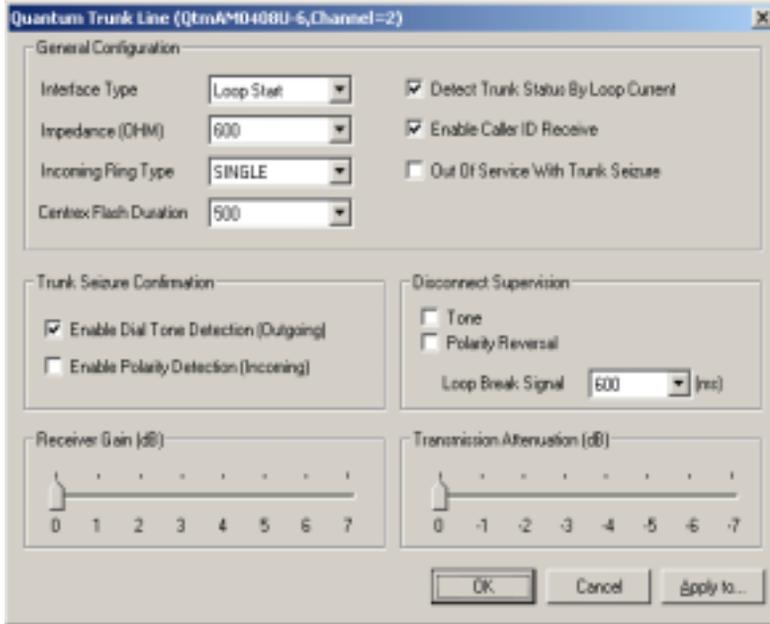


Figure 4. Triton Analog Trunk Properties window

Note that you can use **Apply to...** on this dialog box to apply changes to other trunks of the same type.

Parameter	Description
Interface Type	For the LS/GS model, can be one of the following: <ul style="list-style-type: none"> • Loop Start Trunk • Ground Start Trunk For the LS model, only Loop Start Trunk is available.

Parameter	Description
Impedance	<p>The resistance of electrical current to alternating current, measured in OHMs. Impedance occurs when power or signal is transferred from one circuit to another. The setting options are:</p> <ul style="list-style-type: none"> • 600 OHMs (domestic setting) • 900 OHMs (international setting, depending on the country) • External
Incoming Ring Type	Can be single or double.
Enable Caller ID Receiving	Select this checkbox to receive caller ID digits.
Centrex Flash Duration (ms)	Specifies the Flash Duration time in milliseconds, with a range from 150 ms to 1000 ms. This setting complements the Centrex Flash Support option in the General window for the trunk.
Enable Dial Tone Detection (Outgoing)	Detects outgoing dial tone.
Loop Current Break Duration (ms)	Disconnects signal if CO breaks loop current. You can set the duration from 200 to 1000 ms.
Tone Disconnect	Busy tone (reorder tone, fast busy tone, error tone, etc.) or dial tone (continuous tone, etc.). This should be used in conjunction with drop in loop current. For COs who cannot guarantee loop break, this may be the only option.
Receive Gain	<p>Slide setting adjusts the incoming volume from -6 dB to 6 dB for every Triton Analog Trunk channel.</p> <p>The default setting is 0 dB, and it is highly recommended not to change this setting.</p> <p>Caution: Setting the volume too high will cause distortion in voice quality and/or missed DTMF digits.</p>

Parameter	Description
Transmit Gain	<p>Slide setting adjusts the outgoing volume from -6 dB to 6 dB for every Triton Analog Trunk channel.</p> <p>The default setting is 0 dB, and it is highly recommended not to change this setting.</p> <p>Caution: Setting the volume too high will cause distortion in voice quality and/or missed DTMF digits.</p>

Triton VoIP Trunk Configuration

To configure a Triton VoIP channel, select a Triton VoIP channel from the trunk channels list in the Trunk Configuration window, then click the **Trunk Properties** button or double-click the list entry to view the **Triton VoIP Trunk Line Configuration** dialog box.

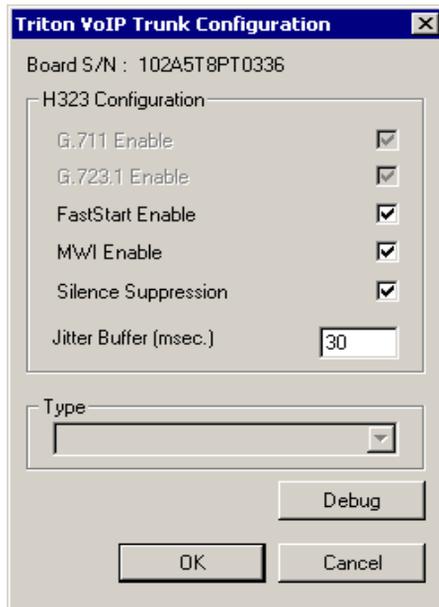


Figure 5. VoIP Trunk Configuration window

The primary configuration for the Triton VoIP is the **H.323 Configuration**, with the following settings:

Parameter	Description
G.711 Enable	Provides toll quality digital voice encoding and is not configurable—that is, you cannot deselect it. It guarantees interoperability when other voice compression (e.g. G.723.1) is not available or when better voice quality is desired.
G.723.1 Enable	Uses low rate audio encoding to provide near toll quality performance under clean channel conditions. This option is also not configurable. On the 30-port board, it cannot be selected; on the 4-port and 12-port board, it cannot be deselected.
FastStart Enable	Fast connect feature allowing endpoints to establish channels without waiting for an H.245 connection to be opened.
MWI Enable	Message Waiting Indication (MWI) feature which activates a message waiting light on an IP phone to inform a user of unheard voicemail messages.
Silence Suppression	Suppresses silence packets during VoIP sessions. When silence is detected during a call, AltiWare IP stops sending packets to the other side. When silence is detected during voice mail, the silence period is not recorded. AltiWare IP disconnects the voice mail session when a silence period exceeds 7 seconds during voice mail recording over VoIP.
Jitter Buffer (msec.)	Indicates the delay, in milliseconds, used to buffer voice packets received from the IP network. Voice packets sent over the IP network may incur different delays due to network load or congestion. The Jitter Buffer helps to smooth out the delay variation in the arriving voice packets and maintain voice quality at the receiving end. The default setting is 30 milliseconds. The Jitter Buffer should be adjusted according to the WAN bandwidth allocated to data traffic.

Parameter	Description
Type	Lets you select between a 12-port G.723.1 configuration and a 30-port G.711 configuration. This is available only with the 12-port board and 30-port upgrade license.

Debugging the Triton VoIP Configuration

Click the **Debug** button in the Triton VoIP Configuration dialog box(see Figure 5)to open a small dialog box for typing and sending a debug string.

Triton T1/PRI Trunk Properties

To configure a Triton T1/PRI channel, select a Triton T1/PRI channel from the trunk channels list in the Trunk Configuration window, then click the **Trunk Properties** button or double-click the list entry to view the **Triton T1/PRI Trunk Line Properties** dialog box.

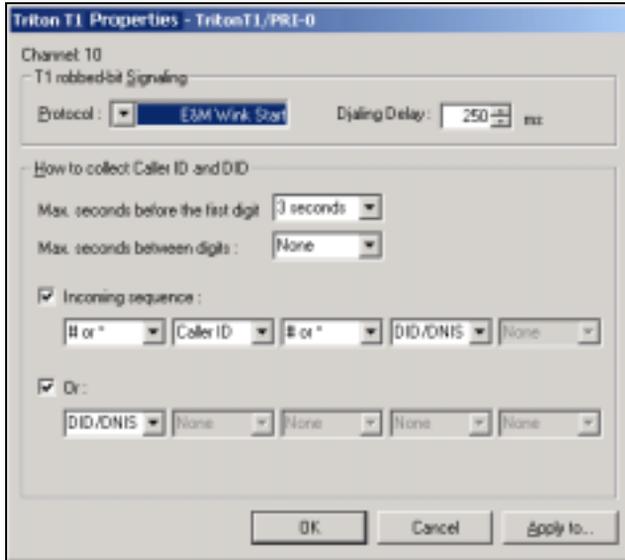


Figure 6. Triton T1 Configuration dialog box

The following are the parameters for the Triton T1 Configuration dialog box:

Parameter	Description
T1 robbed-bit signaling	

Parameter	Description
Protocol	<p>You can set Protocol to one of the following:</p> <ul style="list-style-type: none"> • E&M Wink Start (default) • E&M Immediate Start • Ground Start • Loop Start <p>For signaling from one board to another, only FXS (Foreign Exchange Subscriber) is supported. Loop Start and Ground Start protocols cannot be used for interfacing between two boards.</p>
Dialing Delay	<p>Specifies the delay, in milliseconds, after trunk seizure and before digit dialing. <i>Do not change this value unless advised.</i></p>

Caller ID and DID Collection

You can select the maximum time-out delays, in seconds and the appropriate sequence of symbols to be collected for Caller ID and DID.

Max. seconds before the first digit	<p>Maximum wait time before time-out for the system to identify this digit after either the first <i>ring</i> in ground start or loop start or the <i>wink</i> in wink start. The range is from 1-6 seconds, or <i>None</i>, with a default value of 3 seconds. <i>Do not change this value unless advised.</i></p> <p>'None' means <i>no</i> Caller ID or DID information will be collected. All other options will be grayed out. Use this option to disable Caller ID and DID collection.</p>
Max. seconds between digits	<p>Maximum wait time before time-out between two digits. Default value is 'None.' <i>Do not change this value unless advised.</i></p> <p>Selecting 'None' means the system will only wait for the sequence of digits that are collected within the length of time specified in the Max. seconds before the first digit field.</p>

Setting General Trunk Attributes

Parameter	Description
Incoming sequence	<p>Select up to five incoming symbols to collect from the Caller ID or DID digits:</p> <ul style="list-style-type: none">• None• #• *• # or *• Caller ID• DID/DNIS <p>Selecting 'None' in any field of the sequence will terminate the sequence and automatically disable subsequent entries in the sequence.</p> <p>The default sequence is</p> <p># or * (and then) Caller ID (and then) # or * (and then) DID/DNIS</p>
Or	<p>Sets up an additional, alternative sequence. You can select another set of up to five incoming symbols to collect.</p> <p>Not checking any box is equivalent to checking 'None' in the first field.</p>
Apply to...	<p>If appropriate, you can use this button, as described in "Configuring One or Multiple Trunks" on page 199, to apply the Caller ID Collection to multiple T1 trunks.</p>

Caller ID and DID Incoming Sequence Example

The following is an **example** of a Caller ID and DID/DNIS incoming sequence window.

How to collect Caller ID and DID

Max. seconds before the first digit: 3 seconds

Max. seconds between digits: 1 second

Incoming sequence:

Caller ID * DID/DNIS None

Dr:

DID/DNIS None None None None None

Figure 7. Incoming Sequence window

When a call comes in, the system tries to match the incoming sequence to either the first or second Incoming Sequence Digit String sequence. If no match is found, no Caller ID or DID digits will be collected.

- The system waits 3 seconds for the first digit to arrive. If the symbol is a #, it continues with the first sequence. Otherwise, it looks for a match to the first (and only) symbol in the second sequence, the DID/DNIS number.
- For the example, let's say the system receives the #. It then waits 1 second between each digit for the next digit until all digits are received. The * symbol is a delimiter between Caller ID and DID digits.

In this example, the AltiServ system is expecting either the sequence #CID*DID or only DID digits for incoming calls. If no match is found for either sequence, no Caller ID or DID digits are collected.

Incoming Call Routing

To set incoming call routing for a trunk, select the trunk in the General window, then click the **In Call Routing** tab in the **Trunk Configuration** window to display the **In Call Routing** window. The trunk location appears in the title bar.

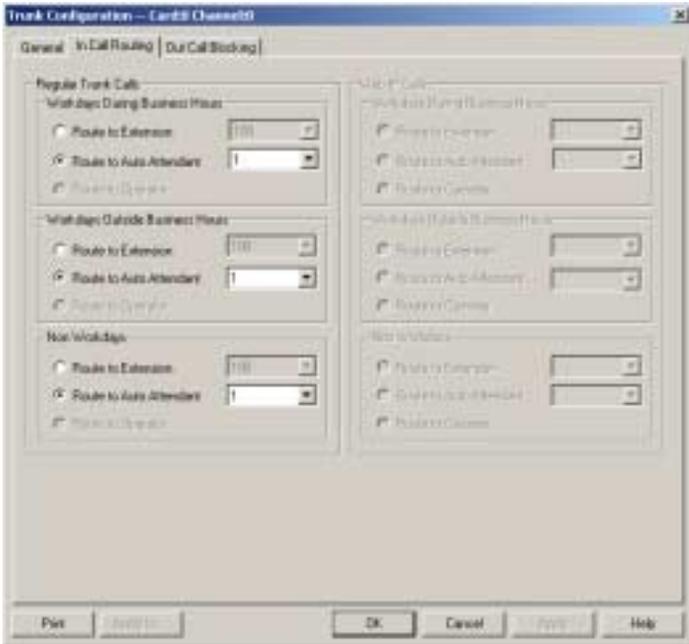


Figure 8. In Call Routing window, Trunk Configuration

For each trunk—or using **Apply to...** to apply the settings to multiple trunks—you can set routing for the three time periods defined in the System Configuration Business Hours window (“Setting Business Hours” on page 135):

- During Business Hours.
- Outside Business Hours.
- Non Workdays.

Within each of these three time slots, you have the following routing options for incoming calls:

- Route to an extension selected in the drop-down list.
- Route to an auto-Attendant number selected in the drop-down list.
- Route to the operator.

Outgoing Call Blocking

To set outgoing call blocking for a trunk, select the trunk in the General window, then click the **Out Call Blocking** tab in the **Trunk Configuration** window to display the **Out Call Blocking** window with the selected trunk location in the title bar.



Figure 9. Out Call Routing window, Trunk Configuration

If you select **Trunk allowed for Outside Calls at Any Time**, call restrictions set in System Configuration, Outcall Routing, and Extension Configuration still apply to calls made on the trunk.

If you select **Outside Calls Allowed According to The Following Schedules**, you can then use the Schedule 1, 2, and 3 options to set up to three different time periods during which calls are allowed.

You can use **Apply to...** to apply the settings to multiple trunks.

Outgoing Call Blocking

Extension and Workgroup Configuration



There are three types of extensions:

- **Physical Extensions** are associated with a physical port and device, usually a telephone set. This is what most users think of as an *extension*.
- **Virtual Extensions** are not associated with a physical port. Virtual extensions can be used as message mailboxes and in telephone sharing environments. Users of a virtual extension can log in on any available station to access physical extension features using Feature Codes.

You can create up to 2,000 total (physical + virtual) extensions.

- **Workgroup pilot numbers.** In AltiWare, the first step in setting up a workgroup is creating a workgroup pilot number, which is a type of logical extension. You assign physical and virtual extensions to the workgroup pilot number, making them members of the workgroup, and when the workgroup extension is dialed, the system hunts for an available member extension to which to route the call. AltiWare allows up to 32 workgroups to be configured. Each workgroup can have up to 128 members, and extensions can be assigned to multiple workgroups.

IP extensions can be configured either as physical or virtual extensions.

After creating the extensions, you then work with the following settings, each of which is accessed by a tab in the Extension Configuration window.

- **General** setup—creating the extension numbers and assigning people to the extensions, creating workgroup pilot numbers, and setting other basic parameters.
- **Workgroup**—adding and removing workgroup members.
- **Station Speed**—extension speed dial numbers.
- **Mailbox Settings**—capacity and features options for extension mailboxes.

- **Notification**—preferences and options for voice mail notifications.
- **Restrictions**—extension out-call restrictions.
- **Answering**—call forwarding, call waiting, and call handling preferences and options.
- **One Number Access**—special handling for designated VIP calls.
- **Monitor List**—extension rights to monitor other extension calls.

Three Configuration Windows in One

Certain configuration functions apply only to physical extensions—for example, configuring the physical line. Other functions apply only to workgroup pilot numbers—for example, setting up incoming call routing to workgroup members when the workgroup extension is dialed. And some functions, or the lack of function, apply only to virtual extensions—for example, call waiting options do not apply to virtual extensions.

Generally, you work on extension configuration by selecting an extension in the General window, then clicking another tab to work on the settings in some other window. The features and functions available in the Extension Configuration windows vary depending on the type of extension selected.

When you select an extension in the General window—the first window you see when you first launch Extension Configuration—and work on it under other tabs, the extension number appears in the window title bar. For example, if you’re setting up phone answering options, the workgroup view of the window shows Workgroup Handling options that do not appear in other views.

You can print the data in any of the windows by clicking the **Print** button.

Apply or Apply To...?

The extension configuration windows often allow you to apply changes to a particular extension or workgroup (**Apply**), or to select many extensions or workgroups to which to apply the changes (**Apply To...**).

Clicking the **Apply To...** button pops up a list of all extensions to which the change can apply. All extensions are selected by default. You then de-select the ones you don’t want, or de-select all and then select the ones you want. Note that you cannot use the mouse to drag over and select multiple items; you must use the Shift and Ctrl keys.

The **Apply To...** button is disabled unless there is a change that can be applied to multiple extensions, and when you use it to apply changes to multiple extensions, it works on only those changed attributes that can be applied. For example, if you use **Apply To...** on the General window after you changed the person's name, you do not re-assign the same name to others, because the name is not an attribute that uses **Apply to...**

Accessing Extension Configuration

To access Extension Configuration, either select **Extension Configuration...** from the **Management** menu, or click the **Extension Configuration** icon on the Quick Access Toolbar.

Setting up Extensions

The Extension Configuration General window provides for creating extensions and establishing their basic attributes.

The General window is the default tab displayed when you open the Extension Configuration window. If you're viewing another Extension Configuration window, you can click the General tab to open the General window.

Setting up Extensions

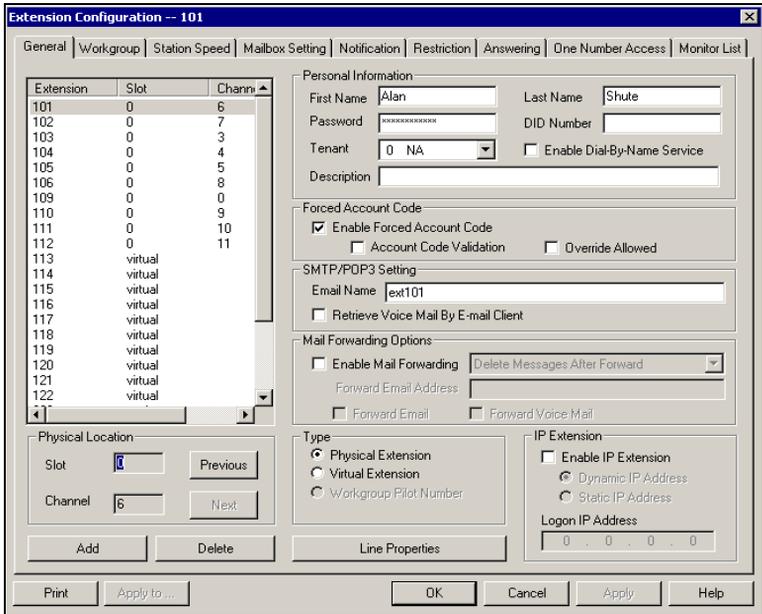


Figure 1. General window, Extension Configuration

Adding New Extensions

To add a new extension:

1. Click the **Add** button in the General window. The Add New Extension dialog box opens.



Figure 2. Add New Extension dialog box

2. Type in an **Extension Number**.

The number must begin with a number assigned to be used for extension, and it must be the length assigned to extensions, both of which are set in the Number Plan in System Configuration as described in “Setting a System Number Plan” on page 132.

3. Select the **Type** of extension from the three options, **Physical**, **Virtual**, or **Workgroup Pilot**.

Note: See the discussion of the different extension types in *Chapter 8, Extension and Workgroup Configuration*. Note also that after the extension is created, you can change Virtual extensions to Physical, and vice versa, but you cannot change Physical or Virtual to Workgroup pilot or vice versa.

The **Physical Extension License** displays the maximum number of physical channels licensed to the user as well as the number of assigned, licensed physical channels.

4. Depending on the type of extension you’re creating, take one of the following actions:

- If you’re setting a *virtual* or *workgroup pilot number*, you’re done. Click **OK**.
- If you’re setting up a physical extension, select an available physical location—*slot* and *channel* for the line—then click **OK**.

The *slots* (the location of the board in the PC) and the *channels* (the ports) are displayed and available if they have not yet been assigned to an extension.

Establishing Basic Extension Attributes

After you create an extension, you can set other basic attributes in the Extension Configuration General window:

To set the Personal Information:

Type in the User Name, Password, DID, Tenant Group, and optional Description:

- **First Name** and **Last Name** of the extension user, each with a maximum of 32 characters.

- **Password** for the extension user. The default is the system default password set on the Number Plan tab of the System Configuration window.

A valid password cannot be the same as its extension number and must be 4–8 digits (numbers or letters A–Z) in length. Basic password patterns, such as repeated digits (1111) or consecutive digit strings (1234) are not allowed. The letters map to numbers (on a phone, for example) as follows:

Numbers	Letters
2	A, B, C, a, b, c
3	D, E, F, d, e, f
4	G, H, I, g, h, i
5	J, K, L, j, k, l
6	M, N, O, m, n, o
7	P, R, S, p, r, s
8	T, U, V, t, u, v
9	W, X, Y, w, x, y
1	Q, Z, q, z

- **DID Number**—each extension can be assigned a DID number. This number does not have a fixed length, but the length must be long enough (range 2–16) for the system to match the DID incoming call.

It is recommended to use the full 10 digit DID number, not just the last few digits. This full number guarantees the system can send the correct number as the Caller ID on PRI lines. With fewer digits, the system sends the trunk’s *configured phone number* as the Caller ID. If the trunk number is not configured, the system *main number* is sent.

- **Tenant**—a drop-down list of Tenant IDs (groups) to which the extension can be assigned. See “Using a Tenant Table” on page 161 for more information on Tenants.

Note: If an extension is assigned to **N/A** in the **Tenant** drop-down list, *the extension is able to access all trunks, even though the trunks have been to assigned to tenants.*

- **Enable Dial-By-Name Service**—select this box to allow callers to search the extension list by employee name for this extension.

Note: The **Tenant** and **Enable Dial-by-Name Service** settings can be applied to multiple extensions by using **Apply To...**, as described in “Apply or Apply To...?” on page 218.

- **Description**—Optional descriptive information such as cubicle number or job title.

Forced Account Code

These settings determine how callers use any account codes you have established when making outgoing trunk calls. For information on creating account/code associations, see “Creating Account Codes” on page 142.

- **Enable Forced Account Code**—selected, forces the user to enter an account code.
- **Override Allowed**—selected, prompts the user to enter an account code, or the user can press # to bypass the account code.
- **Account Code Validation**—selected, forces the user to enter a valid account code.

Setting Email Options

In the General window, you can set the email options for the extension:

- **Email Name**—the user’s email name without the @domain. The default email name is `ext[extension number]`, that is, the letters “ext” followed by the extension number. For example, the default email name for extension 2497 would be **ext2497**.
- **Retrieve Voice Mail by Email Client**—selected, this sends voice mail to the user extension as an email attachment. Deselected, voice mail is retrieved as voice mail.
- **Enable Mail Forwarding**—selected, the user’s email will be forwarded to the email address you specify in the **Forward Email Address** box. The address should be a full address, including the domain (for example, `jsmith@thecompany.com`).

If you enable mail forwarding, you also specify what you want done with the original messages after they have been forwarded. In the drop down list you can choose to:

- **Delete Messages after Forward**
- **Keep the Messages as New**
- **Keep Messages as Saved**

Further, if you enable mail forwarding, you can use the check boxes whether you want to **Forward Email**, **Forward Voice Mail**, or both.

Changing the Extension Location or Type

Changing the Type

The type of extension is set when you create the extension: physical, virtual or workstation pilot, described in *Chapter 8, Extension and Workgroup Configuration*. After you create the extension, the type is displayed as a **Type** radio button list in the General window.

You can change a **Virtual** extension to a **Physical** one, and *vice versa*, but you cannot change either to a **Workgroup Pilot Number**, nor can you change a workgroup pilot number to another type after it is created.

If you change the type to physical, you can also set the location and configure the line as discussed in the subsequent paragraphs.

Changing the Location

When you create a physical extension, you assign it a location or you accept an automatically assigned location. If you have available extensions, you can change the location in the General window.

To change the location, select the extension number in the list of extensions, then click the **Previous** or **Next** buttons to change the slot and channel settings until the location you want is displayed. Like other changes, this change isn't finalized until you click **Apply**.

Setting an IP Extension

The IP Extension option allows an H.323 compliant terminal device (IP phone) to connect to AltiServ. IP extensions have the same features as analog stations. For system requirements and limitations on setting up IP extensions, see *Chapter 16, Setting Up IP Extensions*.

To use the IP Extension option, check the **Enable IP Extension**, then set the IP addressing by choosing either **Dynamic** or **Static IP Addressing**. If you choose Static addressing, you need to type in a Logon IP Address.

The type of addressing you use affects users:

- **Using static IP addressing**, the extension user logs in from the station having the IP address. An advantage for virtual extensions is that the user doesn't have to log in at all; when the user connects to the system, the extension is immediately recognized as an IP extension. When physical extensions connect, on the other hand, the system prompts the user to log in. Static addressing is more convenient for users and may be preferred by users who work primarily at a specific location.

Important: If you enter the server's IP address as the **Logon**, IP trunk calls from another Altiserv system will receive a dial tone rather than the Auto Attendant. From the dial tone, callers can dial extension numbers on this system.

- **Using dynamic IP addressing**, the IP extension can log in from any IP address. However, the IP extensions must always log in via the Auto Attendant and log into voice mail to activate the IP extension. Users who travel may well prefer dynamic addressing.

Important: When you enable dynamic IP addressing, a physical extension on one Altiserv system can effectively disable the Auto Attendant for system-to-system IP calls to the second system. This happens if a physical extension on one system calls a second system via an IP trunk, logs into an extension, and enables an IP connection. As long as the connection is active, all IP trunk calls from the first to the second system will receive a dial tone rather than the Auto Attendant. From the dial tone, callers can dial extension numbers on the second system.

Setting VoIP Codecs

The default codec for static IP extensions is G.711, which gives a bandwidth of approximately 64 kbps. This is appropriate for lease lines or high-speed connections. The default codec for dynamic IP extensions is G.723, which gives a bandwidth of approximately 6.4 kbps. This is appropriate for internet connections.

You can change these defaults and set dynamic IP addressing ranges and codecs for Altiserv-to-Altiserv connections using the VoIP Codec Configuration window.

To open the VoIP Codec Configuration window:

- Choose **VoIP Codec Configuration** from the **Management** menu.

Setting up Extensions

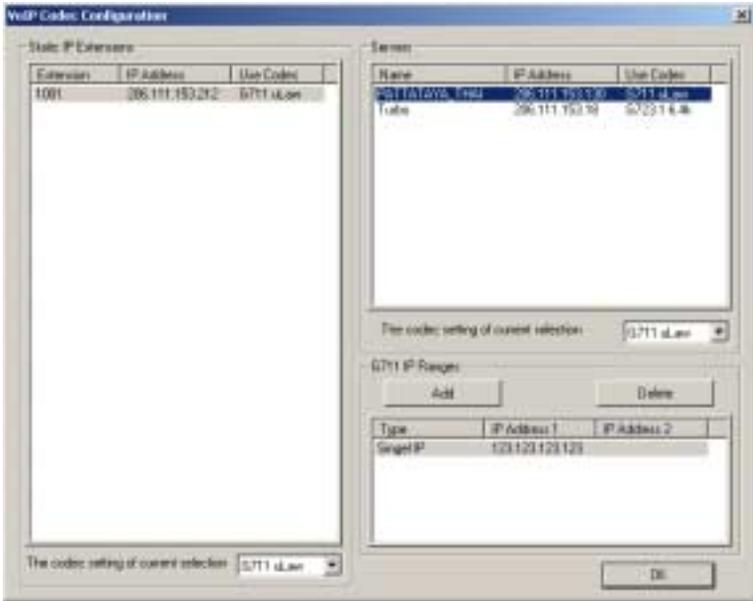


Figure 3. VoIP Codec Configuration window

Parameter	Description
Static IP Extensions	Lists IP extensions with static IP addressing you have created in the Extension Configuration window
Servers	Lists other Altiserv servers you have entered in the IP Dialing Table window, which have Altiserv-to-Altiserv connections to your server
G711 IP Ranges	Lists the G.711 dynamic IP address ranges you have created in the Add IP Codec Setting dialog box, described below

To set the codec of an IP extension with static IP addressing:

1. Select the extension in the **Static IP Extensions** list.
2. In the drop-down below the list, select the codec to use for this extension.

To set the codec for a connection to another AltiServ server:

1. Select the server in the **Servers** list.
2. In the drop-down below the list, select the codec to use for a connection to this server.

Note: AltiServ-to-AltiServ IP connections between systems using OE 4.5 must use the same codec.

To set ranges and values for dynamic IP addressing:

1. In the **G711 IP Ranges** list, click the **Add** button. The **Add IP Codec Setting** dialog appears.



Figure 4. Add IP Codec Setting

2. In the Add IP Codec Setting dialog, specify **Single** or **Range** to set a single dynamic IP address or a range of addresses.
3. Enter a **Start** value and, for a Range, an **End** value for the dynamic IP addresses your IP extension users can access.

You cannot use the minimum and maximum values (0.0.0.0 and 255.255.255.255).

4. Click **OK**.
5. Repeat these steps for every range or value you wish to make available for users of IP extensions with dynamic addressing.

IP and Physical Extension Login/Logoff Interaction

When an IP extension associated with a physical extension logs in, the physical extension is disabled. When the IP extension logs off, the physical extension is automatically enabled.

While the IP extension is logged in, the user can activate the physical extension on a phone using the #27 feature code. This logs off the IP extension.

Setting the Line Properties

For a physical extension, you can configure hardware options on the board port used for the extensions. To do so, select the extension number in the list of extensions, then click the **Line Properties** button to open a dialog box that is specific to the board using for the extension.

The Line Properties are somewhat different for **Quantum Board** than for **Triton Analog Station Boards**. The subsequent sections deal first with Quantum, then with Triton Analog Station.

Quantum Line Properties

If you select a Quantum board extension and click Line Properties, you'll see the Quantum Line Properties dialog box. Note that you can use the **Apply to...** button to apply these hardware settings to one, some, or all ports on the board. Using **Apply to...** is discussed in "Apply or Apply To...?" on page 218.

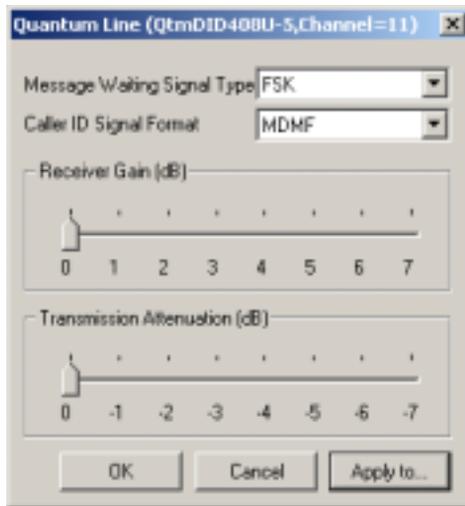


Figure 5. Quantum Line Properties dialog box for extensions

Configure the following hardware extension-specific features:

Parameter	Description
Message Waiting Signal Type	Type of Message Waiting indicator for the phone set: <ul style="list-style-type: none"> • None. • Voltage—voltage-based indicator. • FSK—Frequency Shift Keying indicator. • Tone—tone-based indicator.
Caller ID Signal Format	Message format with which to send Caller ID information: <ul style="list-style-type: none"> • None • SDMF—Single Data Message Format for supporting and sending a single data type, such as phone numbers. • MDMF—Multiple Data Message Format for supporting and sending multiple data types, such as name and number information.
Receiver Gain/Transmission Attenuation	Incoming and outgoing volume for every extension. Unlike the Quantum board, these slide settings have positive and negative values. Both defaults are 0 decibels.

Caution: Use caution in setting the Receiver Gain or the Transmission Attenuation. If either setting is too high, the result will be distortion in voice quality.

Triton Analog Station Line Properties

If you select a Triton Analog Station Board extension and click the **Line Properties** button, you'll see the *Triton Analog Station Line Properties* dialog box. Note that you can use the **Apply to...** button to apply these hardware settings to one, some, or all ports on the board. Using **Apply to...** is discussed “Apply or Apply To...?” on page 218.

Setting up Extensions

You can also access this window by double-clicking a span in **Channel Mapping List** of the Triton Analog Station Board configuration window.

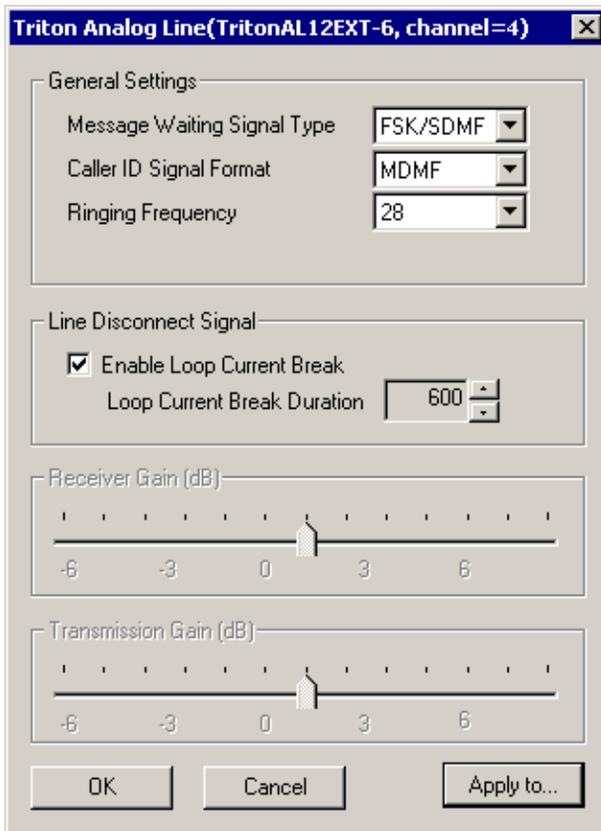


Figure 6. Triton Analog Station Line Properties dialog box

Configure the following hardware extension-specific features:

Parameter	Description
Message Waiting Signal Type	FSK or None .
Caller ID Signal Format	SDMF , MDMF , or None .
Line Disconnect Signal	The loop break desired for answering supervision, either 200 or 600 ms . Note: If the extension uses a 390 phone with Intercom service, set this to 750 ms .
Ringing Frequency	Select the frequency in Hz that is necessary for the equipment attached to this line.
Receiver Gain/Transmission Attenuation	Incoming and outgoing volume for every extension. Unlike the Quantum board, these slide settings have positive and negative values. Both defaults are 0 decibels.

Caution: If the Receiver Gain or the Transmission Attenuation setting is too high, the result will be distortion in voice quality.

Setting up Workgroups

A primary use of a workgroup is as a hunt group—when the workgroup extension is dialed, the system hunts for an available member extension to which to route the call. You can use workgroups for various purposes, for example, in selecting a workgroup as a System Operator.

AltiWare allows up to 32 workgroups to be configured. Each workgroup can have up to 128 members or extensions, and an extension can be a member of multiple workgroups.

Note: If the workgroup pilot extension is configured to Ring All Available Members, the maximum number of members is 20. See “Setting Workgroup Handling” for details.

There are three sets of Extension Configuration steps to set up workgroups:

- The first step is creating a workgroup pilot number, a type of logical extension, as discussed under “Setting up Extensions” on page 219.
- Once the workgroup pilot number is created, you can use the Answering window of Extension Configuration to establish call answering options—for example, ringing the first available group member, ringing the longest idle member, and so forth—as well as No-Answering and other options.
- Also, once the workgroup pilot number is created, you can use the Workgroup window to assign physical extensions as members of the workgroup, as discussed below.

Note: A feature of workgroup membership is that all members are set to the “Logout” state at system startup or reboot.

Establishing Workgroup Membership

There are two different ways to attach extensions to workgroups.

1. If you select a **workgroup** in the Extension Configuration General window, then click the **Workgroup** tab, you open the **Workgroup view of the Workgroup window**, which provides for *adding extensions to the selected workgroup* and setting workgroup queue handling and overflow.
2. If you select an **extension** in the Extension Configuration General window, then click the **Workgroup** tab, you open the **Extension view of the Workgroup window**, which provides for *assigning workgroups to the selected extension* and for setting wrapup times.

This section discusses the first way first.

Important: Regardless of which way you add extensions to workgroups, the order in which you add extensions can have consequences. For example, one way of handling incoming workgroup calls is to always send the call to the first extension, if available, the second if the first is not available, and so forth.

When you add an extension to a workgroup, the extension is in the “Logout” state. The workgroup member must manually log in.

Adding Extensions to Workgroups

To add extensions to a workgroup, select the workgroup pilot number in the list of extensions in the General window, then click the **Workgroup** tab. The workgroup pilot number appears in the window title bar.

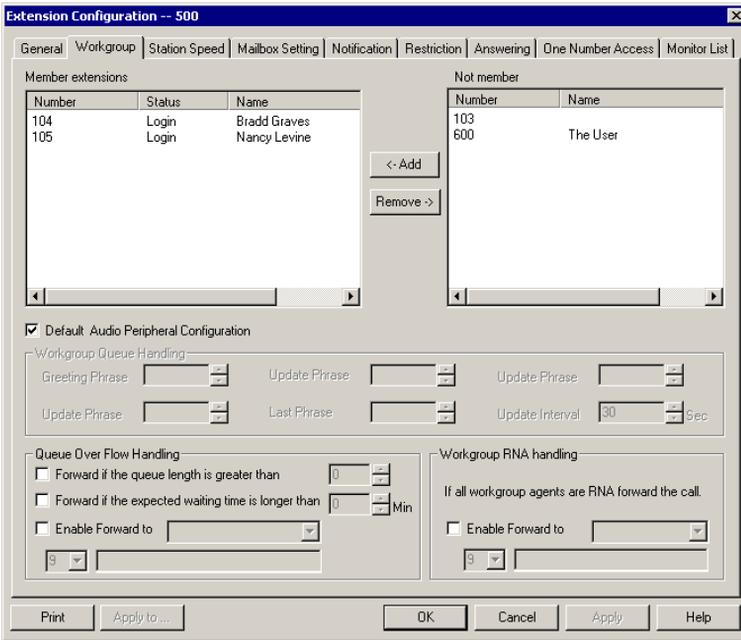


Figure 7. Workgroup view of Workgroup window, Extension Configuration

Adding or Removing Members

To add extension(s) to the selected workgroup:

1. In the Workgroup view of the Workgroup window, click the extension number(s) in the **Not Member** list.
2. Click **Add** to move them to the **Member** list.

Note: If the workgroup pilot extension is configured to Ring All Available Members, the maximum number of members is 20. See “Setting Workgroup Handling” for details.

To remove extension(s) from a workgroup:

1. Click the extension number(s) in the **Member** list.
2. Click **Remove** to move them to the **Not Member** list.

Setting the Audio Peripheral Options

In the Workgroup view of the Workgroup window, you can also set audio peripheral options—which greetings and updates to use, and so forth. For each workgroup you can either use the system default audio peripheral configuration or you can set up a custom configuration.

The default audio peripheral setup is discussed in “Audio Peripheral Configuration” on page 283. Custom configuration involves choosing other phrases—a function set with the Auto Attendant as discussed in *Chapter 10, Auto Attendant Configuration*.

You can also use **Apply to...** as discussed in “Apply or Apply To...?” on page 218 to apply the configuration to one, some, or all workgroups.

Handling Queue Overflow

In the Workgroup view of the Workgroup window, you can also set options for handling long queues or long wait times for callers. When a queue exceeds a set number of calls, or callers are waiting beyond a set length of time, calls are automatically forwarded to an Auto Attendant, voicemail box, extension, or outside number.

To set options for handling call overflow:

1. In the **Queue Over Flow Handling** field group, set options for queue length and wait time. You can set one or both of these.

Note: The expected waiting time is calculated by average queue time x queue size + (average queue time/2) / 60. The default average queue time is 60 seconds.

2. Set a call forwarding destination if the queue length and wait time settings are exceeded. If this option is not enabled, calls will go to the workgroup’s voicemail.

Note: If you choose an extension, this can be the same workgroup extension or another workgroup.

You can use **Apply to...** as discussed in “Apply or Apply To...?” on page 218 to apply the configuration to one, some, or all workgroups.

Workgroup Ring No Answer Handling

In the Workgroup view of the Workgroup window, you can also set options for RNA handling for an entire workgroup. If an incoming call encounters RNA for every agent in the workgroup, the call will be forwarded according to these settings. If you do not set options here, the call will go to the workgroup's voicemail after ringing all agents.

To set options for workgroup RNA handling:

- In **Workgroup RNA Handling**, select **Enable Forward To**, then specify settings for an extension, outside number, or Auto Attendant as necessary.

You can use **Apply to...** as discussed in “Apply or Apply To...?” on page 218 to apply the configuration to one, some, or all workgroups.

Assigning Workgroups to Extensions

This is the second of the two ways (see “Establishing Workgroup Membership” on page 232) to assign extensions as members of groups.

This method—selecting a physical or virtual extension and then clicking the Workgroup tab—provides an extension view of workgroups. You can see all the workgroups to which the extension belongs, and you can change those assignments.

To open the Extension view of the Workgroup window:

1. Select the Virtual or Physical extension number in the list of extensions in the General window.
2. Click the **Workgroup** tab. The *Extension* view of the Workgroup window opens, with the extension number appearing in the window title bar.

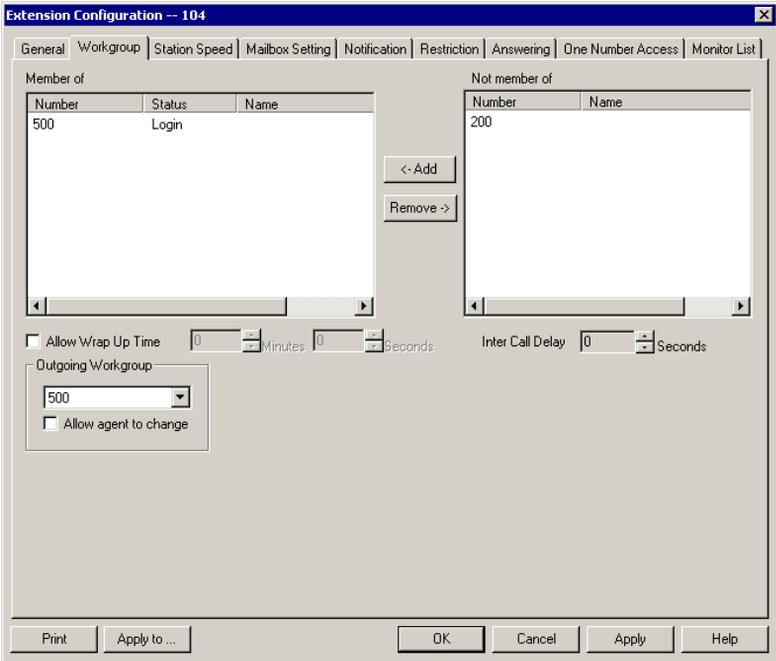


Figure 8. Extension view of Workgroup window, Extension Configuration

Adding or Removing Workgroup Assignments

To assign workgroups to the selected physical or virtual extension:

1. In the Extension view of the Workgroup window, click the Workgroup pilot number(s) in the **Not Member** list.
2. Click the **Add** button to move them to the **Member** list.

Note: If the workgroup pilot extension is configured to Ring All Available Members, the maximum number of members is 20. See “Setting Workgroup Handling” for details.

To remove workgroups assigned to a physical or virtual extension:

1. Click the workgroup pilot number(s) in the **Member** list.
2. Click the **Remove** button to move them to the **Not Member** list.

Setting Wrapup Time

In the Extension view, you can set the Wrapup Time for the selected physical extension. *This option doesn't appear for a virtual extension.* Wrapup time is a system delay before routing the next call to the extension, and it gives the agent time to finish up with notes, prepare for the next call, log out of the workgroup, or hit the “Wait” button in AltView after putting a call on hold and going back onhook. You can set a wrapup time of up to 29 minutes, 59 seconds.

To set the extension wrapup time:

1. Check the **Allow Wrap Up Time** box.
2. Using the drop-down lists, select the minutes and seconds for the delay. Be sure to set at least enough time (e.g. 5 seconds) to allow an agent to hit the “Wait” button in AltView after putting the caller on hold and going onhook.

Setting Inter Call Delay

Like Wrapup time, Inter Call Delay can create time before the next call comes in. It can be set for any extension.

If the system is delaying the next call to a user extension based on the Wrapup Time setting, the Inter Call Delay setting is ignored.

However, if Wrapup Time does not apply—for example, if it is de-selected—then Inter Call Delay acts as follows:

- If the extension user hangs up and there are callers waiting in an extension or workgroup queue, the ring is delayed for the number of seconds specified in the Inter Call Delay setting.
- If the extension user hangs up, there is no one waiting in a queue and a call comes in within the Inter Call Delay period, the call is put through immediately; the Inter Call Delay period is ignored.

To set the extension Inter Call Delay time:

1. Check the **Inter Call Delay** box.
2. Using the drop-down lists, select the seconds for the delay. The default is 15 seconds.

Setting an Outgoing Workgroup

In the Extension view, you can assign an agent to an outgoing workgroup, which is useful for call detail reporting and workgroup statistics. All calls made by the agent while they are logged in to the workgroup will be tracked as calls from the workgroup. The agent's outgoing workgroup can be assigned to any workgroup of which they are a member.

To set an agent's outgoing workgroup:

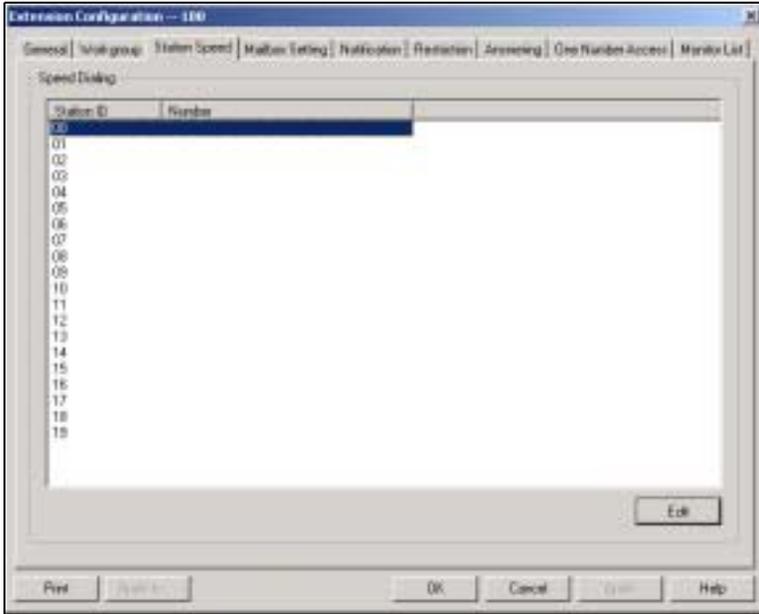
Choose a workgroup from among the workgroups the agent belongs to. If the "Allow agent to change" checkbox is checked, the agent can change their outgoing workgroup from their phone set or from AltAgent.

When a user is first assigned to a workgroup, it is set as their default outgoing workgroup and remains so no matter how many workgroups they are subsequently assigned to. If an agent is unassigned from their outgoing workgroup, their outgoing workgroup is automatically set to N/A.

Setting up Station Speed Dialing

For each physical extension, but not for workgroups or virtual extensions, you can set up to 20 station speed dial numbers. The numbers available are from 00–19, used following the extension speed dial access code, #77.

To work with Speed Dialing settings, select the extension number you want to work with from the list in the Extension Configuration General window, then click the **Station Speed** tab.



Extension and Workgroup Configuration

Figure 9. Station Speed Dialing window, Extension Configuration

Editing Speed Dial Entries

To add or edit an entry:

1. Double-click the **Station ID** number you want to work with, or select the number and click **Edit**. A dialog box appears:



2. Type in the full number as you would dial it, with a maximum of 20 digits per entry. For example, the phone number 914085551212

Setting the Mailbox Options

comprises of **9** (trunk access code), **1** (long distance prefix), followed by **408** (area code), and finally the seven digit telephone number.

Valid digits include **0** through **9**, **#**, *****, and **(,)** comma. **The comma represents a one (1) second pause.**

Note: You can use **Apply to...** to apply speed dialing numbers to one, some, or all physical extensions. See “Apply or Apply To...?” on page 218 for more information on using **Apply to....**

Setting the Mailbox Options

The Mailbox Settings define how voice messages are handled for an extension: whether the mailbox is information only or is full-featured, how messages are announced and processed, and how much capacity is allotted to message storage.

To work with mailbox settings, select the extension number you want to work with from the list in the Extension Configuration General window, then click the **Mailbox Setting** tab to open the Mailbox Setting window.

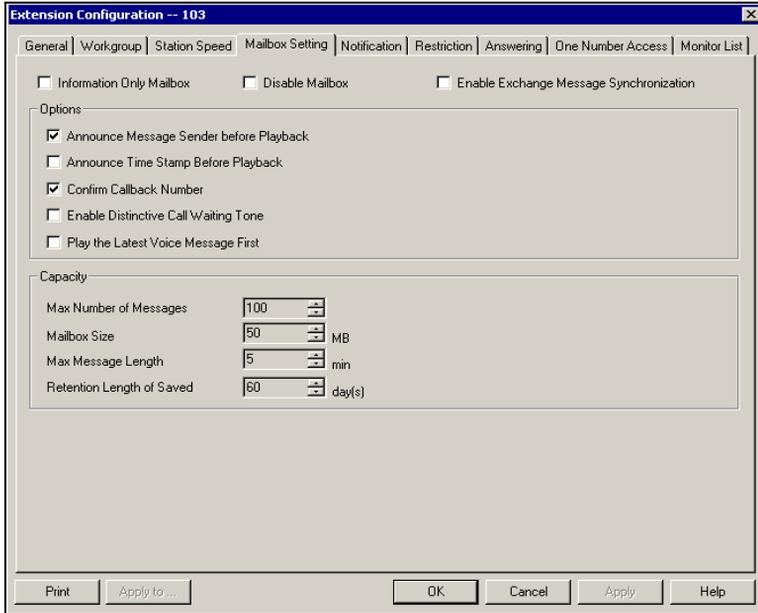


Figure 10. Mailbox Setting window, Extension Configuration

Note: You can use **Apply to...** to apply mailbox settings to one, some, or all extensions. See “Apply or Apply To...?” on page 218 for more information on using **Apply to...**

Setting an Information-Only Mailbox

You can select the **Information Only Mailbox** check box to set virtual or physical extension mailboxes to Information Only, then click **Apply** or **Apply to...** to set one or more extension mailboxes.

An Information Only mailbox allows callers to listen to customized recorded announcements but does not provide taking messages from the caller. To repeat the message, callers are instructed to press the # key.

You cannot set a workgroup pilot number mailbox to **Information Only**.

Disabling a Mailbox

When you disable a mailbox, the normal greeting is played but callers cannot leave messages.

Synchronizing with Exchange Server

If your system is set up to synchronize with an Exchange Server, you can select this check box to enable synchronization for voice mails. See “Setting E-mail Messaging Options” on page 154, and “Setting up an Exchange Server” on page 308.

Setting Mailbox Playback Options

You can use the following checkboxes to turn on or off options for listening to playback of recorded messages. These options apply to both new messages and saved messages, and they can be applied to multiple extensions using **Apply to....**

Parameter	Description
Announce Message Sender Before Playback	Selected, the user hears the name of the message sender (internal sender only) before listening to recorded AltiGen Voice Mail System messages.
Announce Time Stamp Before Playback	Selected, the user hears the timestamp (time and date) of each message before playback.
Confirm Callback Number	Selected, system confirms the accuracy of the caller’s number.
Enable Distinctive Call Waiting Tone	Selected, the user hears three different call waiting tone cadences to distinguish between internal, external, and operator calls (see “Distinctive Ring” on page 131).
Play the Latest Voice Message First	Selected, voicemails are played in reverse order of their delivery when the user retrieves them.

Setting Mailbox Capacities

You can set various mailbox capacities with the following options:

Parameter	Description
Max Number of Messages	Maximum number of messages stored in the user's mailbox. The range is 1–999 , defaulting to 100.
Mailbox Size	Mailbox size in MBs of stored messages. The range is 1–500 MB , with a default of 50.
Max Message Length	Maximum length of voice messages in minutes. The range is 1–30 minutes, with a default of 5 minutes.
Retention Length of Saved Messages	Number of days saved messages are archived by the system. The range is 1–90 days, with a default of 60.

These options can be applied to multiple extensions using **Apply to....**

Setting Message Notification Options

The Notification tab of Extension Configuration provides for setting notification options on new incoming email as well as voice messages.

To work with notification settings, select the extension number from the list in the Extension Configuration General window, then click the Notification tab to open the Notification window.

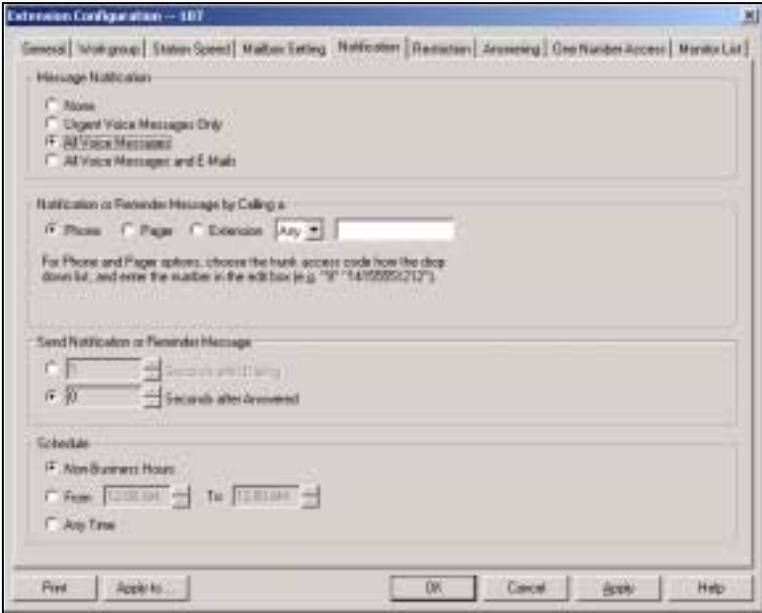


Figure 11. Notification window, Extension Configuration

Individual users can also configure **Message Notification** within the AltiGen Voice Mail System.

Note: You can use **Apply to...** to apply notification settings to one, some, or all extensions. See “Apply or Apply To...?” on page 218 for more information on using **Apply to....**

Setting the Message Types for Notification

Select the types of messages for which the extension user is notified:

- **None**—selected, the user is *not* notified with a call regarding newly received messages. Selecting this option does not prevent the user from getting message waiting indicators or stutter dial tone when new messages are received.
- **Urgent Voice Messages Only**
- **All Voice Messages**
- **All Voice Messages and E-mails**

Setting the Type of Notification

There are three options for sending the notification or reminder message: **phone**, **pager**, or **extension**.

To use the **Extension** option, select the **Extension** radio button, then type the extension number into the text box. For the **Phone** and **Pager** options, first specify the trunk or route access code using the drop-down list next to the **Extension** radio button. The **Any** option means to locate any available trunk. Then type in the number with all relevant dialing prefixes other than the trunk code, using a maximum of **80** digits.

Note also the following considerations:

- Using the **Phone** option, see “Outcall to Cellular or PCS Phone Numbers” on page 245.
- For the **Pager** option, the system calls the specified pager number and then dials the system main number (as set in the System Configuration General window), which is then displayed on the user’s pager.

For the operator-assisted paging function, the operator phone number **and** the pager number must be entered in the **<phone number>*<pager number>** format. For example, if the phone number to call the pager operator is **7654321** and the pager number to page the user is **12345678**, the notification outcall number that needs to be entered is **7654321*12345678**. When the pager operator answers the Message Notification call, AltiServ announces the **pager number and the System Main Number** (as configured on the **General** window of **System Configuration**) which will be displayed on the user’s pager. The operator is also given the option to repeat these numbers by pressing ‘#’.

Outcall to Cellular or PCS Phone Numbers

When an outcall is made by the system (for One-Number-Access, Message Notification, Zoomerang, Call Forwarding, etc.) to a cellular or PCS phone, it may ring the phone once but not necessarily present the call and make a connection. This will happen if the ringback tone played by the cellular service provider does not confirm to standard ringback tones. To work around this problem, instruct users to append a few commas (,) to the outcall (cellular) number when entering it. Each comma provides a one second pause.

Setting Notification Timing

You can set the type of delay detection and the duration (from 5 to 30 seconds) before the system sends the return phone number (the System Main Number as set in the System Configuration General window) after the system detects an answer when sending a notification:

- **Seconds after Dialing**—the delay (from 5 to 30 seconds) after *dialing* before the system sends the return phone number.
- **Seconds after Answered**—the delay (from 5 to 30 seconds) after a call is *answered* before the system sends the return phone number.

Setting Notification Business Hours

You can choose one of three options for when the extension user is to be notified of new messages:

- **Non-Business Hours**—notification only during non-business hours. Business hours are set in the System Configuration Business Hours window (“Setting Business Hours” on page 135).
- **From/To**—notification during a specified time of day. Select the hours in the **From** and **To** time scroll boxes.
- **Any Time**—notification at all times (every day).

Enabling Message Notification

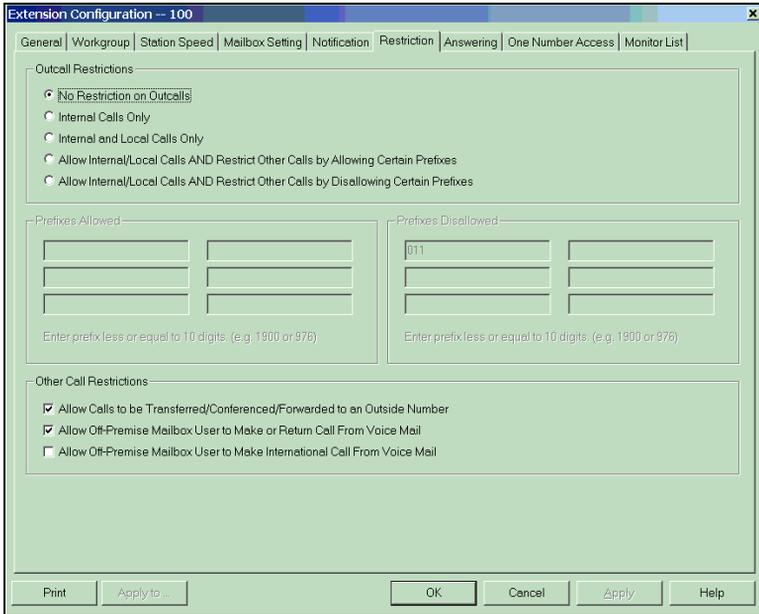
After configuring your message notification settings, to enable message notification, check the “**Allow Calls to be Transferred/Conferenced/Forwarded to an Outside Number**” field in the Restrictions page of Extension Configuration.

Configuring Calling Restrictions

Available restrictions on outgoing calls from extensions range from no restrictions to allowing internal calls only.

System calling restrictions, discussed under “Defining System Call Restrictions” on page 139, specify global restrictions for all extensions, and you cannot override the system settings when you configure extensions. Further, restrictions can be placed on *out call routing* calls, as discussed in *Chapter 9, Out Call Routing Configuration*.

To work with extension call restrictions, select the extension number you want to work with from the list in the Extension Configuration General window, then click the **Restriction** tab to open the Restriction window.



**Extension and
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Configuration**

Figure 12. Restriction window, Extension Configuration

Note: You can use **Apply to...** to apply call restriction settings to one, some, or all extensions. See “Apply or Apply To...?” on page 218 for more information on using **Apply to....**

Setting Call Restriction Options

You can use one of the following options in setting restrictions on an extension or on multiple extensions using **Apply to....**

- **No Restrictions on Outcalls.**
- **Internal Calls Only**—extension-to-extension.
- **Internal and Local Calls Only**—extension-to-extension and local calls only.

- **Allow Internal/Local Calls AND Restrict Other Calls by Allowing Certain Prefixes**—internal calls, local calls and prefixes you specify in the **Prefixes Allowed** boxes. Include all relevant prefix numbers, for example, starting with **1** + prefix.
- **Allow Internal/Local Calls AND Restrict Other Calls by Disallowing Certain Prefixes**—*disallows* calls to outside numbers with prefixes you specify in the **Prefixes Disallowed** boxes. Include all relevant prefix numbers, for example, starting with **1** + prefix.

Setting Other Call Restrictions

You can allow or restrict two other types of calls by using the following check boxes. You may choose to enable or disable these options—the default is set to **Allow Calls to be Transferred/Conferenced/Forwarded to an Outside Number** and **Allow Off-Premise Mailbox User to Make or Return Call From Voice Mail**. These default settings reduce the risk of international toll fraud.

Caution: **Allowing these options may increase the potential for toll fraud if they are not properly administered.**

- **Allow Calls to be Transferred/Conferenced/Forwarded to an Outside Number**—selected, the extension user can transfer, conference or forward calls to an outside telephone number. Checking this box will enable Message Notification.
- **Allow Off-Premise Mailbox User to Make or Return Call From Voice Mail**—selected, the extension user can make or return calls from within voice mail (i.e. Zoomerang).
- **Allow Off-Premise Mailbox User to Make International Call From Voice Mail**—selected, the extension user can make international outgoing calls from within voice mail (i.e. Zoomerang).

Setting Answering Options

Answering options include forwarding, handling busy calls, handling no-answers, workgroup call handling, and other options. Which options are available depends on the type of extension. Workgroup pilots, virtual and physical extensions each use somewhat different answering options.

You can use **Apply to...** to apply call restriction settings to one, some, or all extensions. See “Apply or Apply To...?” on page 218 for more information on using **Apply to...** However, since the available options vary with the type of extension, you can only apply the choices to the same type of extension.

For example, If you are working with the settings for a virtual extension, you can use **Apply to...** to apply changes to one, some, or all virtual extensions, but not to physical or workspace pilot numbers.

To work with extension answering options, select the extension number from the list in the Extension Configuration General window, then click the **Answering** tab to open the Answering window.

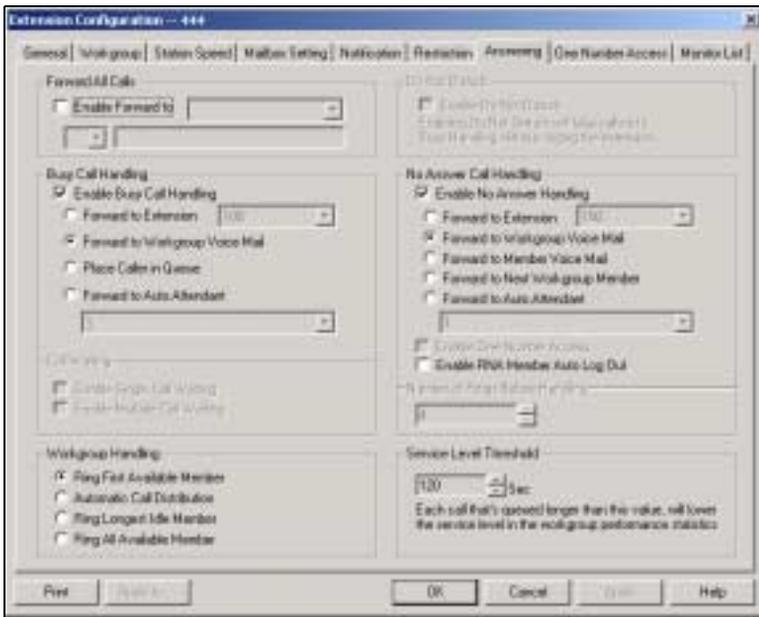


Figure 13. Answering window (Workgroup View), Extension Configuration

Extension and Workgroup Configuration

Forwarding All Calls

Call Forwarding is available to all three types of extensions.

This is the Call Forwarding feature that is also accessible by the extension user by dialing **#36**.

A One Hop Limit to Call Forwarding for a Transferred Call

There is a one hop limit to call forwarding when the call that is being passed is a transferred call. For example, extension 100 receives a transferred call and forwards this call to extension 101; extension 101 is set to forward all calls to extension 102; extension 102 receives the call but CANNOT forward this call to another extension.

A 10-Hop Limit to Call Forwarding for Direct Calls

For direct calls, there is a “10-hop” limit to call forwarding. For example, extension 100 forwards to extension 101, 101 forwards to 102, 102 forwards to 103, and etc. through extension 120. A call to extension 100 will be forwarded to 101, which will forward to 102, which will forward to 103, and etc. until the call has been forwarded 10 times. At this point, the call will not be forwarded again; if the last extension in the forwarding chain does not answer, the call is sent to extension 100’s voice mail.

If there is a loop condition in the forwarding chain (for example, 100 forwards to 101, 101 to 102, and 102 back to 100), the call is sent to the first destination’s voice mail.

To enable call forwarding, select the **Enable Call Forward** to check box, then, using the drop-down list, indicate the forwarding destination. You can use **Apply to...** to act on multiple extensions, with the restrictions discussed in the previous section. The forwarding options are as follows:

- **To Voice Mail**
- To an **Auto Attendant**—select the Auto Attendant number to use in the drop-down list under the option. Auto Attendant settings are established in **Auto Attendant Select...** on the **Management** menu.
- To an **Extension**—select an extension from the drop-down list.
- To an **Outside Number**—this option is available if it is allowed in the **Other Call Restrictions** option in the **Restriction window**, as discussed in “Setting Other Call Restrictions” on page 248. Also, see “Outcall to Cellular or PCS Phone Numbers” on page 245.

If you choose **Outside Number**, select a trunk or route access code to use in the small drop-down list on the left, and type in the full prefix and phone number.

- To the **Operator**.

- To a **Paging Trunk**—forwarding to a pager is *available for virtual extensions only*. Select the trunk to use in the drop-down list. The trunk must have been configured as a paging trunk in **Trunk Configuration...** of the **Management** menu.

Forwarding calls to a pager is possible but **not recommended** since callers will only hear what is heard when calling a pager and will not know to enter a return phone number unless instructed.

Handling Busy Calls

You have several options for handling calls while the extension is busy, and again, the options vary depending on the extension type. If you do not enable busy call handling, the caller simply hears a busy signal.

To enable the options, select the **Enable Busy Call Handling** check box, then select from the following options:

- **Forward to Extension**—Select an extension number in the drop-down list. See “A 10-Hop Limit to Call Forwarding for Direct Calls” on page 250.
- **Forward to Voice Mail.**
- **Place Caller in Queue**—for workgroup numbers and extensions with Multiple Call Waiting, discussed in the next subsection.
- **Forward to Auto Attendant**—use the drop-down list to select an Auto Attendant to which to route the call. Auto Attendant settings are established in **Auto Attendant Select...** on the **Management** menu.

Setting Call Waiting Options

Call waiting options are available only if the **Enable Busy Call Handling** check box has been selected, and this option is *not available to workgroup pilot numbers*. However, the workgroup pilot number does use the **Place Caller in Queue** option discussed in the preceding subsection.

- **Enable Single Call Waiting**—sets up single call waiting. This feature gives an alert tone (audio beep) to indicate that a call is waiting.
- **Enable Multiple Call Waiting**—enables a “personal queue” of multiple calls waiting. You must also select the **Place Caller In Queue** option under **Busy Call Handling** to enable this option. This allows the user to transfer or park the current call before picking up the next call in queue.

Enabling “Do Not Disturb”

This is not available for workgroup pilot numbers. Select the **Do Not Disturb** checkbox option to send all calls for the selected extension(s) to the extension’s voice mail. This feature is also accessible by the user at the user’s station by dialing **#33**. Note that this overrides any One Number Access settings for the extension.

Handling Unanswered Calls

The **No Answer Call Handling** provide options for handling calls when no one answers the extension within a specified number of rings.

Except for Enabling One Number Access, these options are *not available to virtual extensions*. The *options are somewhat different in the physical and workgroup extensions of the window*.

To enable these options, select **Enable No Answer Handling** box.

Use the **Number of Rings Before Handling** scroll box to select a number between 2 and 20 for the times the telephone rings before the call is handled by the system.

Select one of the following options for no answer call handling:

- **Forward to Extension**—Select an extension number in the drop-down list. See “A 10-Hop Limit to Call Forwarding for Direct Calls” on page 250.
- **Forward to Voice Mail** (*physical extensions only*)
- **Forward to Workgroup Voice Mail** (*workgroup extensions only*)
- **Forward to Member Voice Mail** (*workgroup extensions only*)—forwards the call to the voice mail for the extension that didn’t answer the call.
- **Forward to Next Workgroup Member** (*workgroup extensions only*)
- **Forward to Auto Attendant**—use the drop-down list to select an Auto Attendant to which to route the call. Auto Attendant settings are established in **Auto Attendant Select...** on the **Management** menu.

Enabling One Number Access

This check box option is available to all extension types, but with qualifications:

- It is available to physical extensions only when the **Forward to Voice Mail** option is selected.
- It is available to workgroup pilot numbers when the **Forward to Workgroup Voice Mail**, **Forward to Member Voice Mail**, or **Forward to Next Workgroup Member** is selected.
- It is *not* available when **Forward to Auto Attendant** or **Forward to Extension** is selected.

Enabling RNA Log Out

This “Ring No Answer” check box option is available only to workgroups, and only when **Enable No Answer Handling** is selected. When a workgroup member's extension is rung and there is no answer, that member's extension is automatically logged out of the workgroup.

Setting Workgroup Handling

For workgroups pilot numbers, the Extension Configuration Answering window lets you set the handling of normal inbound calls: how to route the incoming call to an extension, using one of the following options:

- **Ring First Available Member**—first *available* extension in a workgroup. For example, if there are three member extensions in a workgroup, the call is always sent to the *first* member configured in the workgroup. If this member is busy, the call goes to the *second* member configured and so forth.
- **Automatic Call Distribution**—a round-robin method that attempts to evenly distribute calls among the workgroup members. This method sends the call to the *next* member configured in the workgroup (regardless of whether the previous member is busy or not).
- **Ring Longest Idle Member**—the agent who has been off the phone the longest.
- **Ring All Available Members**—all extensions in a workgroup.

Note: When this option is enabled, the workgroup can have no more than 20 members.

In addition, calls to workgroups that have this option enabled

have higher priority than other workgroup calls. Therefore, if an agent belongs to multiple workgroups, one of which has this option enabled, a call to that workgroup will be picked up before others, regardless of its Wait Time in the queue.

Setting a Service Level Threshold

For workgroup numbers only, you can use the **Service Level Threshold** scroll box to select the length of time in seconds that a call can be in queue before the call is logged in workgroup performance statistics as having exceeded the allowable service level limits. You can set the value to any number between 1–1200 seconds.

Configuring One Number Access

One Number Access (ONA) allows you to identify specified callers to be connected to the user without having to dial more than one number. The system searches for the caller and, if a match is found, searches for the user through specified forwarding numbers and connects the call if possible. If the system is unable to connect the call, it is sent to the extension user's voice mail.

Note: Options in the window are disabled unless One Number Access has been enabled as a **No Answer** option in the Answering window as discussed in “Enabling One Number Access” on page 252. Furthermore, if the **Enable Do Not Disturb** option is selected in the Answering window, the call is forwarded to voice mail regardless of ONA settings.

To configure ONA, select the extension number from the list in the Extension Configuration General window, then click the **One Number Access** tab.

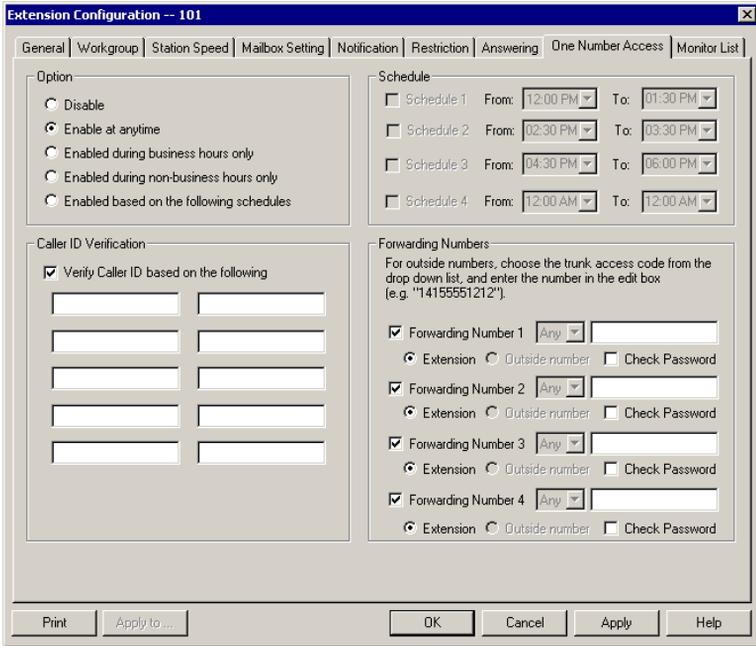


Figure 14. One Number Access window, Extension Configuration

Note: You can use **Apply to...** to apply some ONA settings to one, some, or all extensions of the same type—physical to physical, workgroup to workgroup, etc., but only if the extensions are ONA enabled in the Answering window. See “Apply or Apply To...?” on page 218 for more information on using **Apply to....**

Enabling One Number Access

In the One Number Access window, you enable the function by selecting one of the following options:

- **Enabled at any time**
- **Enabled during business hours only**
- **Enabled during non-business hours only**
- **Enabled based on the following schedules**

Extension and Workgroup Configuration

If you select this last option, **Enabled based on the following schedules**, you can then select and set up to four different time periods—Schedules 1 through 4—using the **From** and **To** time drop-down lists.

After choosing any of the enabling options, you set the **Verify Caller ID** and **Forwarding** choices, and these are discussed below.

Note: You can also enable and set up One Number Access remotely through AltReach.

Disabling One Number Access

You can disable ONA for the extension by clicking the **Disable** option. Disabling access in this window does not destroy the data you might have entered. For example, if you entered a group of Caller IDs to use to identify the caller, these will be available if you enable access at a future time.

Setting Caller ID Verification

You can select the **Verify Caller ID based on the following** checkbox and then type in up to 10 phone numbers in the text boxes. Whenever the system detects a call from one of the numbers entered here during the selected schedule, the system searches for you by dialing the numbers configured in the Forwarding Number fields.

Caution: *If ONA is enabled and no numbers are entered for Caller ID Verification, ONA is available to all callers.*

Caller ID verification entries should be complete phone numbers.

- **Domestic long distance** should be the area code + a seven digit number.
- **Local** numbers should be the seven digit number alone.

Using a Password Verification

You can also enter a random “password” number such as “5555” so that any caller who knows this password can use ONA to find you, regardless of where they are calling from. Once you’ve set this up, you need to instruct the caller to dial 1 during your personal greeting then enter the “password” to use ONA.

Specifying Forwarding Numbers

The **Forwarding Numbers** are used by the system to find the user when ONA is active. You can set up to four different numbers. When ONA is active, the system dials the forwarding number(s) in the order from Forwarding Number 1 through Forwarding Number 4. The Forwarding Number order does *not* correspond to the Schedule order—Forward Number 4 is *not* used first during Schedule Number 4.

You can forward to another extension, or to an outside number. You can use an outside number *only if* the extension is set to allow for **Transferred/Conferenced/Forwarded** calls, an **Other Call Restrictions** option in the Extension Configuration **Restriction** window.

When you use the outside number option, select a trunk or route access code in the drop-down list and type in the phone number as it would be dialed after keying the access code.

Enable the **Check Password** option to force users to enter their extension password when a call is forwarded to them via ONA. This ensures that only the owner of the forwarding extension can answer the call.

Note: If you disable this option, a call forwarded via ONA that is picked up by a voicemail box or answering machine will connect, and will not try any subsequent Forwarding Numbers.

Setting Up Monitor Lists

The **Monitoring List** window provides for setting up lists of extensions for which call processing events can be monitored by the user of a selected extension. Once this monitoring list is established, the application logging into the extension can receive AltiLink Plus events for the monitored extensions. The monitored list is available in the AltiView and AltiAgent Change Monitor windows.

Restrictions and Defaults

- Monitoring is effective for *physical* extensions only; only physical extensions can have monitoring rights, and only physical extensions can be monitored. If you place a virtual extension in a Monitor List, that extension will not show in the client user's Change Monitor window.

Setting Up Monitor Lists

- If you add an extension (1001, for example) that belongs to Workgroup A to the Monitor List for a member of Workgroup B, the Workgroup B member will only be able to pick up *personal* calls to 1001, not workgroup calls.
- In Altisupervisor, the user can monitor only the workgroup(s) he or she logs in to, regardless of the monitoring rights assigned to his or her extension in AltAdmin.
- Workgroup pilot numbers in the Monitor list have no effect in AltAgent or AltView; regardless of the AltAdmin settings, a user cannot monitor a workgroup to which he or she does not belong, and a user *always* has monitoring rights to *every* member of a workgroup to which he or she does belong.

Note: These restrictions can be overridden by third-party applications that make calls through AltLink Plus.

Configuring a Monitor List

To set up a monitoring list, select the extension number to receive the monitoring rights from the list in the **Extension Configuration General** window, then click the **Monitor List** tab.

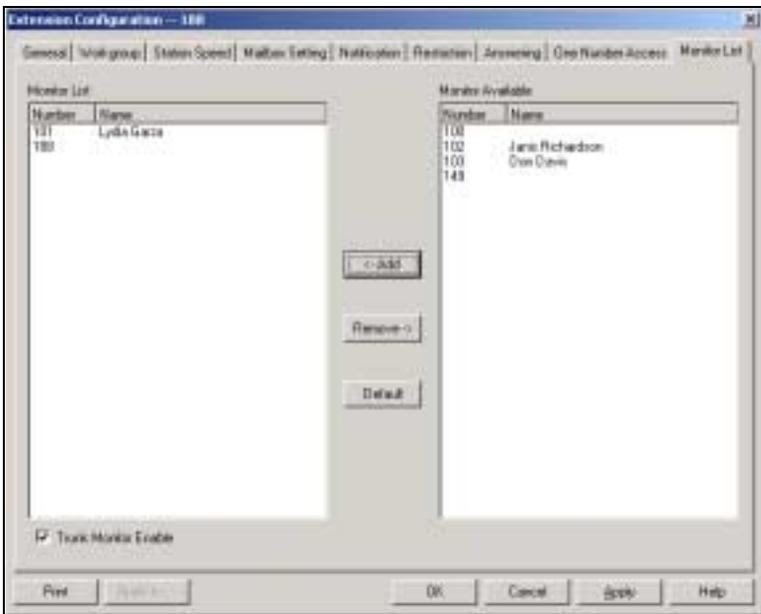


Figure 15. Monitor List window, Extension Configuration

To add members to the list:

1. From the **Monitor Available** list, select the extensions to add to the extension user's AltiView Change Monitor window.
2. Click **Add** to move the extensions to the **Monitor List**.

To remove members:

1. Select the extensions in the **Monitor List**.
2. Click **Remove**.

Select the **Trunk Monitor Enable** check box to allow monitoring of the AltiLink Plus trunk events at the selected extension.

Click the **Default** button to return the settings to the default—the extension can monitor its own calls.

Setting Up Monitor Lists

Out Call Routing Configuration

Out Call Routing Configuration allows you to define default routes for outgoing calls as well as special routing for specific prefixes.

A *route definition* consists essentially of a name and a group of trunks, listed in the order accessed for outgoing calls. You can assign different routing configurations—lists of route definitions—to local, national, international, and 911 outgoing calls. Access to the call routing trunks is set up through the System Configuration Numbering Plan, discussed in “Setting a System Number Plan” on page 132.

If you intend to use Out Call Routing for 911 calls, see the note, “About Call Routing and 911 Calls” on page 265.

Further, you can use the Out Call Routing Configuration window to create and assign exceptions to the normal routes for particular dialing patterns. That is, you can assign or restrict routing to specified dialing patterns.

About Restricting Outgoing Calls

Before using Out Call Routing to restrict outgoing calls, note that there are three AltiWare functions dealing with restricting outgoing calls.

- The **Dialing Pattern** function, discussed in this section in “Setting Dialing Pattern Routing” on page 266, is used to set up blocks with specific exceptions. It also provides the ability to easily turn restrictions on or off.
- The **Call Restriction** function of System Configuration, described in “Defining System Call Restrictions” on page 139, provides for setting up global blocks to outgoing calls and global parameters, such as toll call prefixes, used for other restrictions.
- **Outcall restriction by extension** is discussed in “Configuring Calling Restrictions” on page 246.

The global restrictions established in the Call Restriction window take precedence over Dialing Pattern settings. You can’t set allow calling a number in the Dialing Pattern window if it is blocked in the Call Restriction window of System Configuration.

Accessing Out Call Routing Configuration

To access Out Call Routing Configuration, select **Out Call Routing Configuration...** on the **Management Menu**.

Working with Route Definitions

The **Route Definition** tab is the default view on the **Out Call Routing Configuration** window.

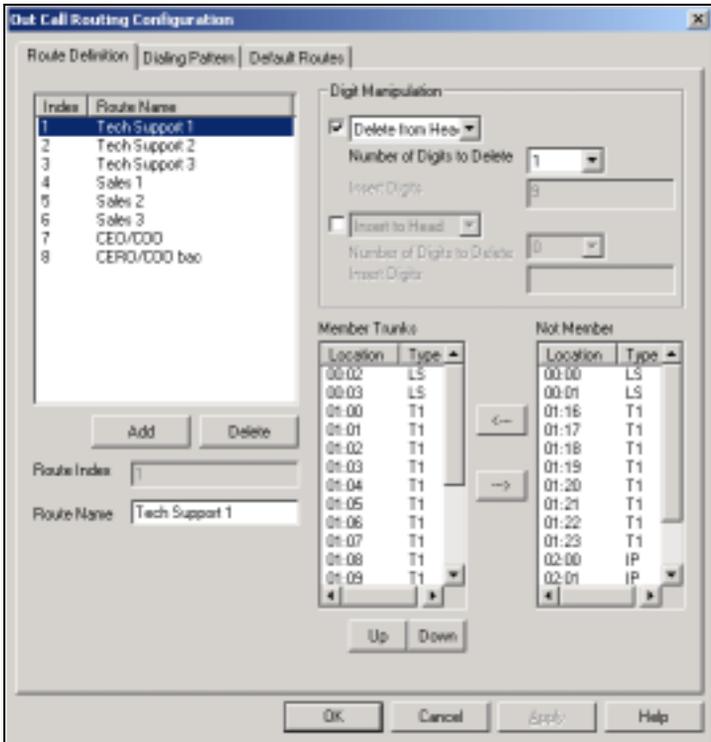


Figure 1. Route Definition window, Out Call Routing Configuration

Adding Route Definitions

To add a route definition:

1. Click **Add** under the route definition list. The **Add an entry** dialog box appears:

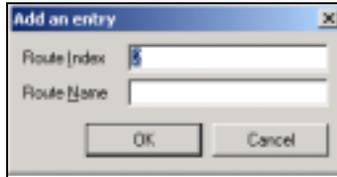


Figure 2. The Add an entry dialog box

2. Type in a name and index number:
 - The **Route Index** determines the position of the definition in the index list of the Route Definition window.
 - The **Route Name** can be descriptive.

After adding the route, you then define it as described in the discussion that follows.

Editing a Route Definition

To define a route definition:

1. Select and highlight the route in the definition list.
2. Make changes to the definition attributes. You can change the following attributes:

- **Route Name**

You can change the name but not the index number.

- **Digit Manipulation**

For each route, you can insert extra digits or remove prefix digits from the number dialed by the user. The number sent to the trunk will then have these digits added or removed.

- **Insert to Head** inserts a string of digits to the number before it is sent to the trunk. Type the digits into the **String to Insert** box.
- **Delete from Head** removes prefix digits from the number before it is sent to the trunk. Select the number of digits to remove in the **Number of Digits to Delete** box.

Setting Default Routes

- Member and Non Member Trunks

Use this to define the trunks and trunk order for the route.

Member Trunks—displays the trunks assigned to the selected route. The order in which member trunks are added determines the order in which the trunks are accessed. (i.e. the first trunk listed is used first, the second trunk is used next, and so forth).

Not Member—displays the trunks, along with trunk location and type, that are not assigned to the selected route.

To add trunks to a route definition group, highlight the trunks you wish to add in the **Not Member** list, then click the left arrow to move the trunks to the **Member Trunks** list. Similarly, you can move trunks to the Non Member list to remove them from the definition.

Use the **Up and Down** buttons to set the order in which the trunks are accessed. Highlight the member trunk you wish to move, then click **Up** or **Down** to place the trunk in the desired position.

3. Click **Apply**.

Deleting a Definition

To delete a route definition:

1. Highlight the definition you want to delete in the route definition list.
2. Click the **Delete** button beneath the list.

Setting Default Routes

The **Default Routes** function allows you to create default routes for four types of outgoing calls: *local*, *long distance*, *international*, and *911*. The default routes are used for all Out Call Routing dialing except for special routing defined on the Dialing Pattern window described later.

Click the **Default Routes** tab in the **Out Call Routing Configuration** window to display the **Default Routes** window.

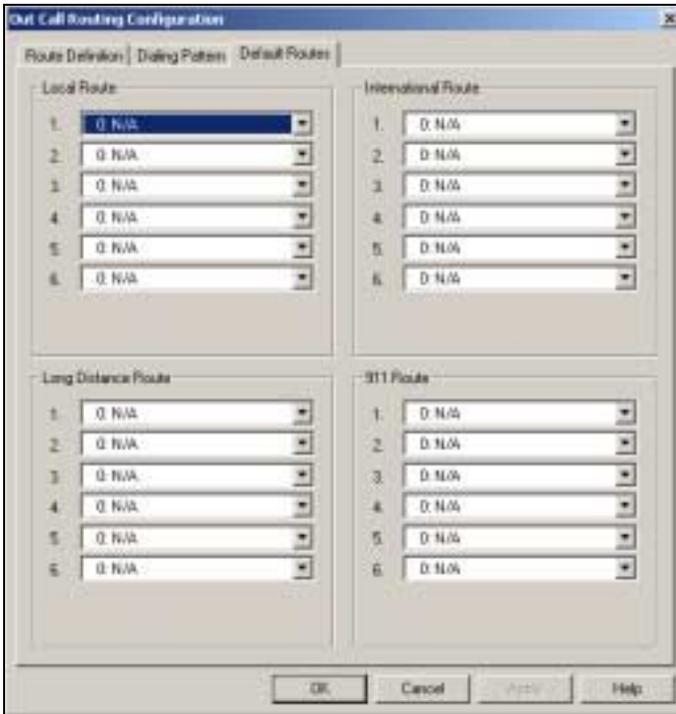


Figure 3. Default Routes window, Out Call Routing Configuration

For each of the four types of calls, you can use the drop-down lists to select up to six route definitions. The order you set, from 1 to 6, is the order used by the system when placing the call.

About Call Routing and 911 Calls

Important: If you use Call Routing for 911, make sure that the default 911 route is configured to the route that can accept 911 calling capability. Failing to do so may cause 911 direct dialing failure. You can leave the 911 default, in which case you need to let all extension users know that they need to dial 9+911 to call 911. It might be a good idea to have them sign a 911 dialing disclaimer stating that they understand and accept the 9+911 configuration.

Setting Dialing Pattern Routing

You can use the Dialing Pattern window to create or disallow routing for specific dialing patterns.

As noted in “About Restricting Outgoing Calls” on page 261, there are three AltWare functions to restrict outcalls, of which the Call Restriction setup of System Configuration takes precedence.

The Dialing Pattern window provides for setting up blocks with specific exceptions. For example, you could use this window to block calls that begin with 767, but to accept and route calls to 767-2676, by disallowing a “767” entry while setting up and providing routing for a separate “767-2676” entry.

Click the **Dialing Pattern** tab on the **Out Call Routing Configuration** window to display a Dialing Pattern window.

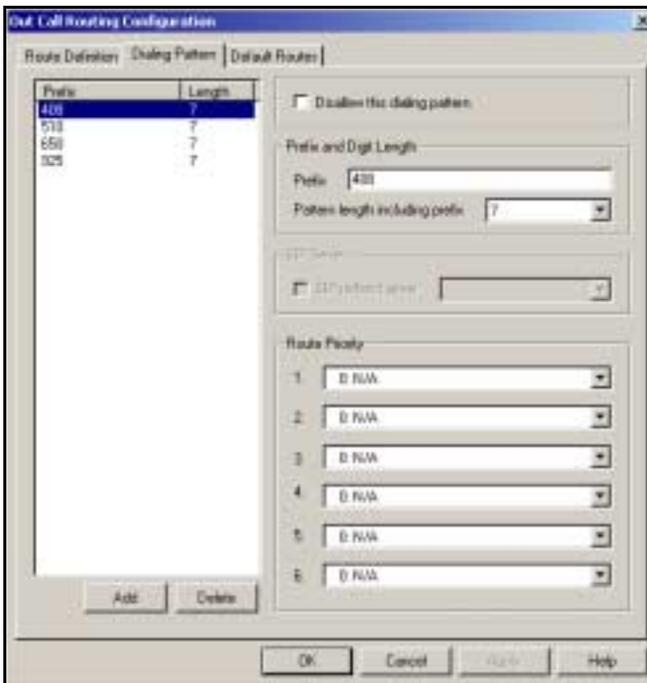
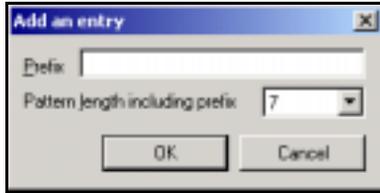


Figure 4. Dialing Pattern window, Out Call Routing Configuration

Adding a Dialing Pattern Definition

1. Click **Add** to open the Add an entry dialog box.



2. Type in a **Prefix** number, select the **pattern length**, then click **OK**.

Note: The pattern length tells the system to wait for n number of digits to be dialed before executing the route or disallowing the call.

Selecting N/A creates a '?' symbol in place of number of the digits, and this indicates an unspecified number of digits.

After a route is added, you can edit to further define it as described in the following discussion.

Editing a Dialing Pattern

To edit, or define, a pattern, select and highlight the route in the prefix list, make changes to the attributes, then click **Apply**.

You can change the following attributes:

- **Prefix and Pattern length.** If desired, you can change the prefix number and pattern length for a prefix.
- **Disallow this dialing pattern** check box. Select this to block calls that match the dialing pattern.
- **Route Priority** boxes. These specify the trunk route(s) and the order of routes assigned to the prefix. Use the drop-down list to select the desired route used when the selected dialing pattern is found. Up to six routes can be assigned, and they are accessed in order from 1–6.

Note: The SIP Redirect Server fields are reserved for future use.

Deleting a Pattern

To delete a pattern, highlight the one you want to delete in the prefix list, then click **Delete**.

Example: 10-Digit Dialing

A sample use of dialing patterns is enabling 10-digit dialing, which some geographical areas require. Normally, Altiserv prepends a “1” to 10-digit numbers when users use single-click calling features such as zoomerang or calling from a Contacts list in Altiview or a TAPI-enabled application. This could cause some calls to fail. Here is how you would enable 10-digit dialing.

1. On the Route Definition tab, define a route that deletes one digit from the head.
2. On the Dialing Pattern tab, create a dialing pattern with **Prefix** set to `<1+area code>`, such as “1408,” and **Pattern length** set to “11,” where *area code* is different from the Altiserv system but requires 10-digit dialing.
3. Assign the Route Priority for this dialing pattern to the Index of the route definition you created above.
4. Repeat steps 2 and 3 above for other area codes requiring 10-digit dialing as necessary.

Auto Attendant Configuration



Auto Attendants perform simple call processing tasks such as transferring calls to extensions to the AltiGen Voice Mail System or the operator, or giving information and secondary options. It can also provide general information that is frequently asked, such as company address. Auto Attendants allow multiple incoming calls to be answered simultaneously. In a call-heavy environment the Auto Attendant can greatly reduce the number of calls that need to be handled by the operator. Calls that do not require an operator's assistance can be handled effectively and appropriately.

In AltiWare OE 4.0 and higher, the Auto Attendant can handle more complex call processing tasks such as handling web-based calls (in addition to PSTN calls).

It can also accept text or digits input by the user. For example, if the Auto Attendant prompts the caller to enter an account number, the call and associated data can be quickly forwarded to an agent's desktop using a third party application.

You can set up to 255 different Auto Attendants, each using all the number keys as well as the * and # key and a timeout option. Each of the Auto Attendants provides for expanding and nesting—a menu choice leading to another menu—up to any number of levels.

Planning is Essential

Follow the steps below before you set up an Auto Attendant.

1. Before you configure tasks for one or more Auto Attendants, you should plan the entire setup. Decide how many options you will provide at each menu and how many menu levels you will use. Based on the action choices in each menu, write down the appropriate prompts or phrases that are to be played at each menu level.
2. Record phrases for each menu level or use the pre-recorded phrases that are available to you. See “Phrase Management” on page 280 for more details on how to record custom phrases, use pre-recorded phrases and use professionally recorded phrases.

Example: Auto Attendant Planning

Auto Attendant ID: 100, Phrase 10
Main Menu for XYZ Office

Digit	Meaning	Action
1	Reserved for	Collect Extension
2	Extensions (no prompts)	Collect Extension
3		Collect Extension
4	Express Support	Expand Tree (No. 110)
5	Sales	Expand Tree (No. 120)
6	Technical Support	Expand Tree (No. 130)
7	Phone FAQs	Expand Tree (No. 140)
8		
9		
0	Operator	To Operator

Auto Attendant ID: 110, Phrase 20
Express Support

Digit	Meaning	Action
1	Installation	Call Extension (Workgroup 350)
2	Board Support	Call Extension (Workgroup 360)
3	Version 5 Support	Call Extension (Workgroup 370)
4	Version 6 Support	Call Extension (Workgroup 380)
5		
6		
7		
8		
9		
0	Operator	To Operator

Auto Attendant ID: 120, Phrase 30
Sales

Digit	Meaning	Action
1	Hardware	Call Extension (Workgroup 310)
2	Applications	Call Extension (Workgroup 320)
3	Check Order Status	GoTo Item 127 (Collect Order #)
4	Other: Questions, etc.	Call Extension (Workgroup 311)
5		
6		
7		
8		
9		
0		

Planning is essential in organizing an Auto Attendant menu structure that makes sense. Planning also helps you to identify needs for custom prompts.

This simple example, using sample work forms for each menu, shows a beginning structure: a main menu and two of the four expansions.

When callers are routed to workgroup extensions, the workgroups have their own call handling settings for greetings, update phrases, rules for sending to voice mail, etc.

Timeout (not shown on forms): after 7 seconds on first level, call the operator; on any other level, go to top level by default.

Adding Auto Attendants

The first 16 Auto Attendants are provided by default with the menus blank. You can edit these as described in “Editing Auto Attendants” on page 274. You don’t need to add a new Auto Attendant if you’re going to use 16 or fewer.

To add an Auto Attendant beyond the first 16:

- Select **Auto Attendant Select...** from the **Management** menu, or
- select **Auto Attendant Select** from the Quick Access Toolbar.

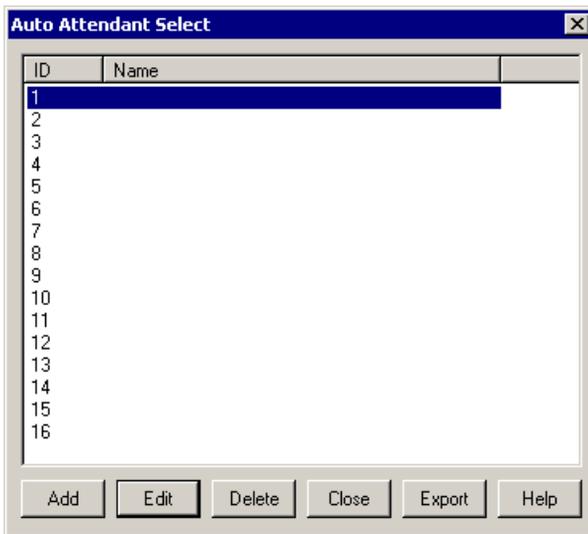
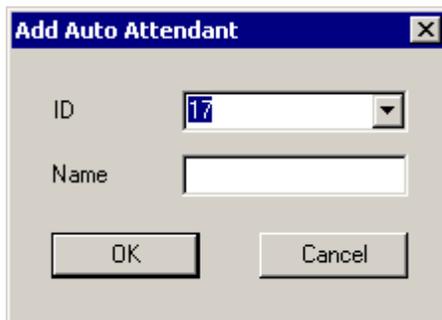


Figure 1. Auto Attendant Select window

- **Add**—opens the Add Auto Attendant dialog box.



Select an **ID** in the drop-down list and type in a descriptive **Name** for Auto Attendant, then click **OK**.

- **Edit**—opens the Auto Attendant window, where you can edit the Auto Attendant as described in “Editing Auto Attendants” on page 274.
- **Clear**—clears all edits to the selected Auto Attendant, restoring system defaults.
- **Close**—closes the Auto Attendant Select dialog box.
- **Export**—exports all Auto Attendant settings to an html file.

Editing Auto Attendants

To edit an Auto Attendant, select **Auto Attendant Select...** from the **Management** menu, or select **Auto Attendant Select** from the Quick Access Toolbar.

When the Auto Attendant Select window appears, select an Auto Attendant in the list and click the **Edit** button.

This opens the Auto Attendant window with the Auto Attendant you selected in the title bar.

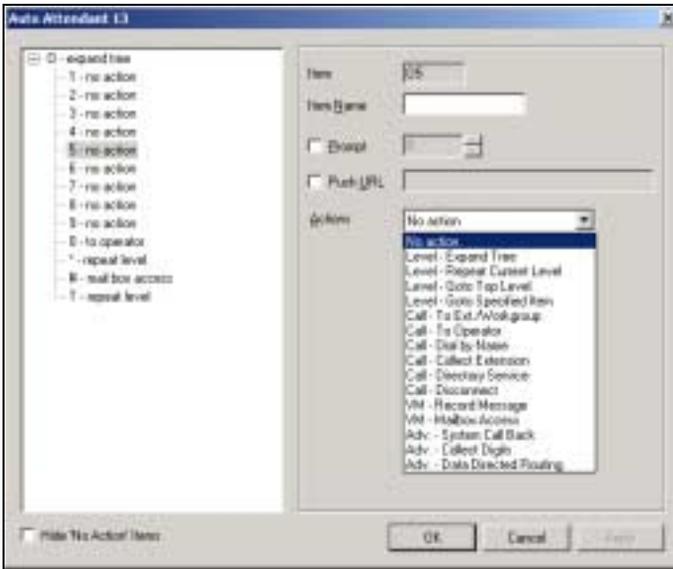


Figure 2. Auto Attendant window

Tip: You can use the Hide 'No Action' Items check box to hide items that are set to 'no action.' This will give you a cleaner view of your various action items.

Configuring Menu Items

For any menu item you want to use, you make an action assignment. If you want the assignment to expand the menu to the next level, choose the assignment, **Level—Expand Tree**.

To make an assignment, select a menu item in the menu tree at the left, then configure it using the entries at the right.

- **Item**—an informational display of the level and item you’re working with. The number gives the following information:

Digit Position	Meaning	Example
First	Root level, always 0	0n – root level. It is followed by a digit if a menu item on the menu is selected. If it is not followed by a digit, there is no expanded menu tree, only a single prompt and a single action such as routing to the operator.
Last	Currently Selected menu item	06 – Menu item 6 is selected at the root level
Inside	Item & Level	058 – Menu Item 5 at the root level is expanded, and Menu Item 8 is selected on the expanded menu.

This key is easier to read when you’re also viewing the expanding menu tree in the display at the left. To use a longer example: **09375** would mean that at the root level (0), menu item 9 is expanded, and on the expanded menu, item 3 is selected. In turn, item 3 is expanded and on that expanded menu, item 7 is selected. Item 7 is selected and on that expansion, item 5 is selected.

- **Item Name**—the name you wish to assign to the menu item.

- **Prompt**—select the prompt number that is to be played for incoming calls. Prompts are numbered in the range of 0–300. The default prompt is **1**, a generic greeting. See “Using Pre-Recorded Prompts” on page 280 to see the script of this prompt and other AltiGen supplied pre-recorded prompts. Discussions on using customized and professionally recorded prompts follow the section on using the AltiGen supplied greetings.
- **Push URL**—a URL associated with the menu item. When this entry is selected, the web page and data is pushed to the web client and the web client browser displays the page. Type a web address in the **Push URL** text box if you wish to prompt a URL to the user.
- **Actions**—the event triggered by the caller pressing the digit for the menu item. This drop-down list contains the available actions, which are as follows:

Table 11. Auto Attendant Actions

Action	Description
No Action	An “invalid” message plays and the menu is repeated.
Level - Expand Tree	Plays the prompt for the next menu level down.
Level - Repeat Current Level	Repeats the current prompt.
Level - Go to Top Level	Repeats the first prompt at the root level and returns the options to the root level options.
Level - Go to Specified Item	Goes to selected menu item at any level. A drop-down appears from which you select the item.
Call - To Ext./Workgroup	Goes to the extension or workgroup number you select in the drop-down list that appears.
Call - To Operator	Routes the call to the operator.
Call - Dial By Name	Prompts the caller to enter the name (first, or last, or both in any order) of the person they wish to speak with and dials the extension that matches the name. Callers may enter just the first letter of the last name to hear a list of all users with last names that begin with the letters entered.

Table 11. Auto Attendant Actions

Action	Description
Call - Collect Extension	Call the extension entered by the user.
Call - Directory Service	Lists the system users and their extensions to the caller. For this to work properly, users need to record their directory names.
Call - Disconnect	Disconnects the call.
VM - Record Message	Records the caller's message. A drop-down list appears from which you select the extension to which to route the voice message.
VM - Mailbox Access	Routes the call to the AltiGen Voice Mail System voice mailbox after successful login. This is normally assigned to the # digit.
Adv. - System Call Back	Calls the user at a remote location, <i>only after the caller logs in with extension and password</i> . The caller should enter a 1 and the area code if it is a long distance number, or 011 and the country code if it is an international number. You must be using a Centrex system to use this feature.
Adv. - Collect Digits	See the discussion below on "Collecting Digits".
Adv. - Data Directed Routing	Prompts the caller to input digits or text and use the data entry to route the call. This allows third party applications to route incoming calls based on caller information.

Collecting Digits

When you select the Collect Digits action, the caller is prompted to enter more digits. Once a minimum number of digits are entered, the system proceeds to open a single item expansion of the Collect Digits action. In the item tree at the left, you can see a "&-" appear as an expanded item action.

To use the Collect Digits action:

1. Selecting the Collect Digit action, first set the following additional parameters:

The screenshot shows a configuration window for the 'Collect digits' action. It includes the following fields and values:

- Actions:** A dropdown menu with 'Collect digits' selected.
- Text Tag:** An empty text input field.
- Min. Length:** A numeric spinner set to 16.
- Max. Length:** A numeric spinner set to 16.
- PSTN Call Inter-Digit Timeout:** A numeric spinner set to 7, followed by 'sec'.
- Web Call Response Timeout:** A numeric spinner set to 30, followed by 'sec'.

Figure 3. Collect digits

- **Text Tag**—a name for this set of options.
 - **Min. Length**—the *minimum* length of digits to be collected.
 - **Max. Length**—the *maximum* length of digits to be collected.
 - **PSTN Call Inter-Digit Timeout**—the length of time the system will wait between collecting of digits before timing out.
 - **Web Call Response Timeout**—the length of time the system will wait for digits after responding to a web-based call before timeout.
2. Click the expanded & - menu item in the item tree and treat it as a normal item—that is, give it a name, a prompt, a push URL if appropriate, and an action to take.

Making Auto Attendant Assignments

Once the Auto Attendants are set up, you can use them in various in-call routing situations—trunk configuration, answering for extensions or workgroups, and so forth.

For example, for trunk /Auto Attendant assignments, see “Incoming Call Routing” on page 214. For extension or workgroup assignments, see “Setting Answering Options” on page 248.

Phrase Management

You might want to record unique phrases to customize an Auto Attendant or a workgroup. When the system is configured to answer incoming calls by the Auto Attendant, callers hear a customized greeting. For example:

“Thank you for calling ABC Company.
Enter the extension number of the person you wish to speak with.
Press 1 for sales,
Press 2 for technical support,
Press 3 for accounts payable,
Press 0 to reach the operator,
To repeat this menu, press star (*).”

An example of a workgroup greeting phrase:

“Please hold; someone will be with you shortly.”

This section covers information using pre-recorded phrases, recording custom phrases, and using professionally recorded phrases.

Using Pre-Recorded Prompts

AltiWare provides ready-to-use pre-recorded phrases. Phrase 0001 is the default Auto Attendant greeting at the root menu level. Phrases 0291 through 0297 are phrases used for workgroup queue prompts.

Phrase #	Phrase
0001 (default)	Thank you for calling. If you know the extension of the person you wish to speak with, please enter it now. To reach the operator, press 0 or simply stay on the line.
0291 (default)	Please hold; someone will be with you shortly. For your convenience, you may leave a message if you wish by pressing the # key on your telephone and we will get right back to you.
0292	Please hold; someone will be with you shortly.
0293	We appreciate your call and will be with you as quickly as possible.
0294	Thank you for your patience. We should be with you soon.

Phrase #	Phrase
0295	Thank you for your patience. We should be with you soon. For your convenience, you may leave a message if you wish by pressing the # key on your telephone and we will get right back to you.
0296	We apologize for the extended delay, but our current call load is abnormally high. Remember, you may leave a message by pressing the # key on your telephone and we will get right back to you.
0297	You may still wait if you prefer, but we suggest you leave a message by pressing the # key on your telephone and we will get right back to you.

Recording Custom Phrases

When you create custom phrases, you should keep a record of phrase numbers and the corresponding phrases so that if a phrase needs to be changed, the correct phrase number is readily available.

To record a custom phrase:

1. Log in from any telephone on the system with the system manager's extension and password.
This brings you to the AltiGen Voice Mail System Main Menu.
2. Press **6** for the Phrase Management option.
3. Press **2** to record a phrase.
4. Enter a four-digit phrase number between 0001 and 0999.
5. Record the phrase after the tone. Press # at the end of the recording.
6. The system will replay the recorded phrase. Press # if the recording is acceptable.
7. At the Phrase Management menu, press **2** to record additional prompts or star (*) to exit Phrase Management.

Using Professionally Recorded Phrases

Recording studios such as Worldly Voices (see AltiGen's Support Page at [http://www.altigen.com/IT Corner.html](http://www.altigen.com/IT_Corner.html) for more information) provide professionally recorded prompts as electronic files that can be installed and used on AltiServ.

AltiGen provides a utility to convert these files into the proper AltiServ format. Some recording studios provide the conversion service for an additional fee. The converted file can then be used for Auto Attendant or Workgroup setup.

To install professionally recorded phrases or prompts:

1. Assign a prompt number (between 0001 to 0999) to each prompt you would like recorded.
2. Submit your prompt script and prompt number to the recording studio.
3. Instruct the recording studio to record prompts in either 8KHz or 11.025KHz mono in the WAVE format.
4. Ask the studio to convert the WAVE file(s) into the proper AltiWare format.
 - If using Worldly Voices, this conversion is done for you.
 - If you are using a studio other than Worldly Voices, the conversion utility is available from AltiGen's Support Web site at [http://www.altigen.com/IT Corner.html](http://www.altigen.com/IT_Corner.html). This utility allows you to convert an audio file recorded at either 8KHz or 11.025KHz in the WAVE format to an AltiWare playable audio file.
5. The prompt should be saved in the following file name format:
 - **0001.wav** for phrase #0001
 - **0002.wav** for phrase #0002, etc.
6. Once you receive the prompts in the AltiWare format, place them in the **altiserv\phrases\LangCustom** directory on the AltiServ.

Your prompts are now ready to be used in Auto Attendant or Workgroup setup.

Additional Setup

This section describes additional system features that must be configured through the Management menu or through AltWare Tools.

Audio Peripheral Configuration

The Audio Peripheral Configuration window (see Figure 1) is used to set up:

- Music-On-Hold
- System Default Beginning and Update Prompts for Callers in Queue
- Overhead Paging

You can access **Audio Peripheral Configuration** by selecting it from the **Management** menu.

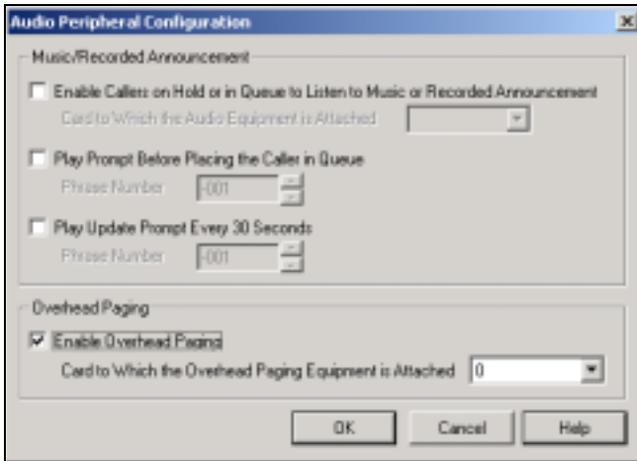


Figure 1. Audio Peripheral Configuration window

Configuring Music On Hold and Recorded Announcements

Callers will hear the music or recorded announcement configured in Audio Peripheral Configuration **only** if the user places the caller on hold by pressing **FLASH** or **LINK**. If the user presses **HOLD**, the caller hears nothing.

To configure music on hold:

1. Open the Audio Peripheral Configuration window as discussed in the previous section.
2. Select the check box, **Enable Callers on Hold or in Queue to Listen to Music or Recorded Announcement**.
3. Select the Quantum or Triton Analog Station board number to which the audio equipment is attached.

Setting Greeting and Update Prompts

To play a prompt before placing the caller into a hold queue:

1. Select the **Play Prompt Before...** checkbox.
2. Use the drop-down list to select the prompt number you want to use for the greeting message. (Creating prompts is discussed in previous sections.)

To play an update prompt every thirty seconds:

1. Select the **Play Update Prompt ...** checkbox.
2. Use the drop-down list to select the prompt number you want to use for the greeting message.

Configuring Overhead Paging

To configure overhead paging:

1. Connect overhead paging equipment to a Quantum or Triton Analog Station board audio out jack.
2. Access the Audio Peripheral Configuration window and select Enable Overhead Paging.

- Use the drop-down list to select the Quantum or Triton Analog Station board to which the overhead paging is attached.

MVIP Clock Configuration

The **MVIP Clock Configuration** option in the **Management menu** allows you to manually set the master clock for the system. By default, the system is set on “**Auto**,” which means that the board provides the most stable clock reference (by the system’s own parameters) and is automatically designated as the master clock by which all other boards set their clock to.

The **Clock Configuration** dialog box (see Figure 2) allows the system administrator to automatically or manually choose the master board.

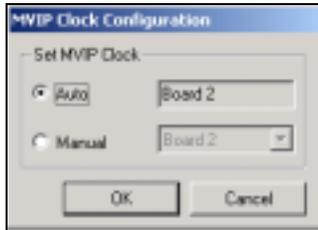


Figure 2. Clock Configuration dialog box

By default, the setting of the clock configuration is set to **Auto**. This means that the system automatically checks all the boards for the most stable clock and designates that board as the master reference clock by which all other boards reference their clocks.

Note: We recommend that you use the **Auto** setting. Do not select **Manual** unless one of your digital spans is connected to equipment other than the PSTN (your regular phone network). It is also recommended that you select the **Auto** setting if there is only one T1/PRI board present in the system.

You can select **Manual** to choose the board to serve as the master clock for the other boards in the system. Click on the arrow to scroll down through the list of boards. It is recommended that you select the **Manual** setting when there are two or more T1/PRI boards present in the system.

Feature Tips

Each time a user logs into the AltiGen Voice Mail System, the user will hear a **Feature Tip**, helpful tips and reminders of the most useful features for optimal use of AltiServ. There are a total of eleven tips and a different tip is played each time the AltiGen Voice Mail System is accessed. Another way to listen to Feature Tips is by pressing **#55** on the telephone. You can listen to just one tip at a time or listen to all the tips at once.

Individual users may turn this feature off (stop AltiServ from playing Feature Tips at the beginning of the AltiGen Voice Mail System login) by pressing **6** at the Personal Options menu. This is a toggle feature, so pressing **6** at the Personal Options menu will turn it back on if it is off.

You may, however, want to completely disable this feature for all users.

To disable Feature Tips system-wide:

1. Select **Run** from the **Start** menu and enter **regedit** to open the **Registry Editor**.

Caution: Changing the registry can affect the configuration of your system! We recommend making a backup copy of the registry before making any changes.

2. Go to the following location:

```
\HKEY_LOCAL_MACHINE\SOFTWARE\AltiGen  
Communications, Inc.\AltiWare\
```

3. Create a new **DWORD Value** (select **DWORD Value** from the **New** option under the **Edit** menu) called **FeatureTipEnabled**.
4. Set the **Value data** to **0** to disable Features Tips. (Set the **Value data** back to **1** to enable Feature Tips again.)
5. Open the **System Configuration** window of AltiWare and click **OK** without making any changes in the data fields. It is not necessary to restart AltiWare.

System Data Management

AltıWare System Data Management provides for backing up data to, and restoring files from, a system hard disk drive or a network drive. This option can only be accessed at the AltıServ system; it is *not* available from a remote AltıAdmin client.

Using Backup and Restore

You can also access this feature by selecting the **AltıWare OE Backup and Restore Utility** program from the AltıWare folder accessible from the Start menu.

To access the feature, click **System Data Management** on the Service Menu.



Figure 1. System Data Management window

Backing up Files

To backup files immediately:

1. Open the System Data Management window as described in the preceding section, then select the **Backup** icon to view the **Backup Configuration** dialog box.

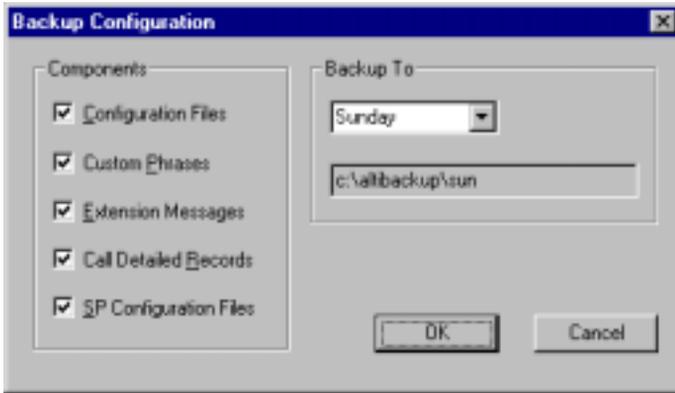


Figure 2. Backup Configuration dialog box

2. In the **Components** box, select the files you want to back up.
3. In the **Backup To** drop-down list, select *the day of the week* you want to use as the starting date for back up files, or select **Advanced**.

Advanced means that you select the folder or drive to back up. Selecting **Advanced** displays a folder icon. Click the folder icon to pop up a browse dialog box that lets you select the folder to backup.

When you click **OK** to close the dialog box, the selected drive or directory is displayed in the box below the **Backup To** drop-down list.

Note: You cannot select **Advanced** to choose a directory and at the same time select a starting day. You need to use one or the other for a particular backup operation.

4. Once you are satisfied with the selection of files to back up, and with the date and target location, click **OK** to start the backup. This closes the dialog box.

In the AltiWare System Data Management window, the progress and status of the file backup is displayed.

Scheduling Backups

You can set up automated backup on a schedule, and you can select the days, the times, and the target drives and folders for the backup.

To set backup schedules:

1. Open the System Data Management window as described above, then select the **Schedule** icon to view the **Backup Schedules** dialog box.



Figure 3. Backup Schedules window

2. Set the options:
 - Select the checkbox for each day of the week you want run the backup.
 - For each day, use the drop-down lists to specify the time. These time settings use a 24-hour clock.
 - You can accept the default target directories, or you can click the **Folder** to open the **Browse for Folder** to select the destination or the backup files.
 - Under **Backup Selection**, select the file components you want to back up: Configuration files, Custom Phrases, Extension Messages, Call Detail Records, and/or SP Configuration files.
3. Click **OK**.

Restoring Backed up Files

To restore the backed up files:

1. Open the System Data Management window as described in “Using Backup and Restore” on page 287, then select the **Restore** icon to view the **Restore Configuration** dialog box.

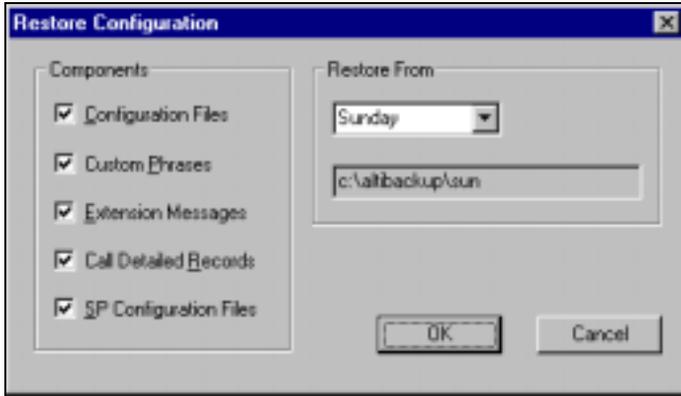


Figure 4. Restore Configuration window

2. Under **Components**, select the file groups you want to restore.
3. Using the **Restore From** drop-down list, select the day you want to restore from, or select **Advance** to choose the restore folder.

Clicking **Advance** displays a folder icon that you can click to open a dialog box that allows you to select the directory you want to restore from.

Selecting a day of the week or manually choosing the restore directory, the directory specification appears in the text box below the drop-down list.

Note: The components you select for restore must have been backed up into the directory you selected. For example, if you didn't back up configuration files on Thursday, you won't be able to restore them from the Thursday directory.

4. Click **OK** to start the restore process.

System Report Management



AltiServ provides system management reports that contain information on system configuration summary, traffic, system log, call detail summary, and IP cumulative traffic statistics.

System Summary Report

The System Summary report provides summary information on extensions, trunks, and workgroups configured in the system.

System Log

To open the System Summary report window, select the **Report** menu from the Main Menu Bar and then select **System Summary** from the drop-down list, or select the **System Summary** icon from the Quick Access Toolbar.

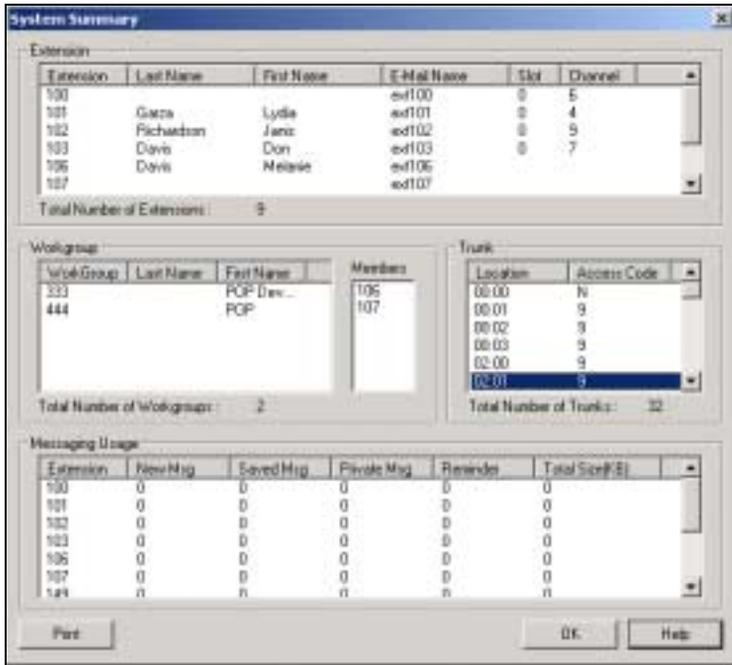


Figure 1. System Summary window

The system configuration summary data includes basic attributes on extensions, workgroups and workgroup members (click a workgroup to display the workgroup's members), trunk location and access, and messaging usage by extension.

You can Print this report using the **Print** button.

System Log

The System Log window displays information on system operating status. This window is designed for use by system engineers and certified personnel only.

To view the System Log, select the **Report** menu from the Main Menu bar, then select **System Log** from the drop-down list, or select the **System Log** icon from the Quick Access Toolbar. You can also view the system log by running the **LogViewer.exe** program in the **[altiserv]\exe** folder.

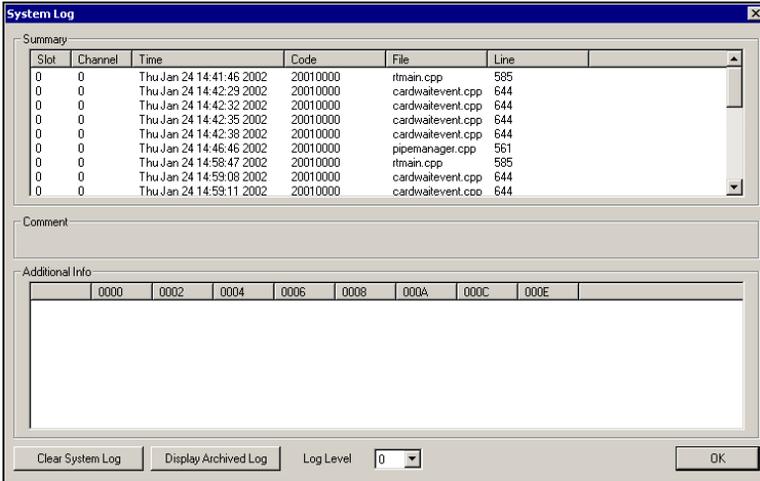


Figure 2. System Log window

The **Summary** box displays information on each channel for each card. Select a channel in the Summary box to see data about the channel in the **Comment** area and additional technical data in the **Additional Information** box.

Click **Clear System Log** to clear the information in all the windows.

Click **Display Archived Log / Display Current Log** to toggle the view between the current and the most recently cleared system log.

Use the **Log Level** dropdown list to view the level of severity for system errors. Level **0** displays the most obvious system errors, Level **5** displays all system errors in specific detail.

IP Cumulative Traffic Statistics

To view a report of all cumulative IP traffic, click **AltiWare IP Traffic Statistics** from the **Reports** menu. The **IP Cumulative Traffic Statistics** window displays the following IP trunk traffic information for **all** calls.

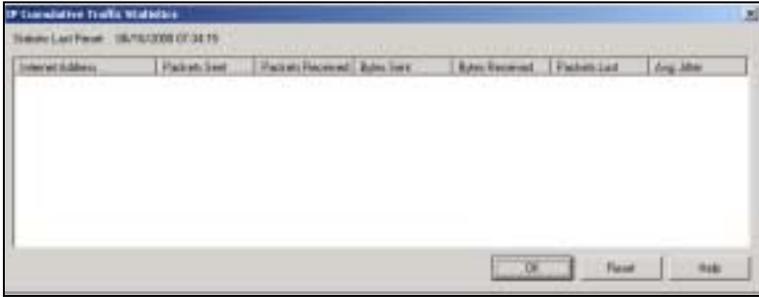


Figure 3. IP Cumulative Traffic Statistics window

This window displays the following data:

Parameter	Description
Internet Address	Displays the IP address or fully qualified DNS name of the remote location.
Packets Sent	Displays the number of voice packets sent to other AltiServ systems over the public or private IP network.
Packets Received	Displays the number of voice packets received from other AltiServ systems over the public or private IP network.
Bytes Sent	Displays the total size (in bytes) of all voice packets sent to other AltiServ systems over the public or private IP network.
Bytes Received	Displays the total size (in bytes) of all voice packets received from other AltiServ systems over the public or private IP network.
Packets Lost	Displays the number of voice packets that have been lost due to prolonged delays, network congestion, or routing failure.

Parameter	Description
Average Jitter	displays the average length of delay per voice packet in milliseconds. This figure should stay under 100 milliseconds. A higher figure indicates a longer average delay. This number can be used to measure the quality of service on the network that connects the source and destination sites.

The difference between the **IP Trunk Current Traffic Statistics** window and the **IP Cumulative Traffic Statistics** window is that the former shows figures only for the *active* call (Current Traffic) on a particular IP trunk of the local AltiServ system while the other window shows figures for *all* calls combined (Cumulative Traffic) to and from remote AltiServ locations.

Resetting Cumulative Statistics

You can reset the **AltiWare IP Cumulative Traffic Statistics** by clicking the **Reset** button. Also, this window automatically resets all fields to **0** when the AltiServ system is shut down and restarted. Statistics gathered before the reset are not saved.

IP Cumulative Traffic Statistics

Data and Internet Integration

This section describes how to integrate AltiServ with the Internet and data communications. It will cover the following areas:

- Email
- Mail forwarding
- Exchange integration
- AltiReach Setup

Network Protocol and Addressing

The AltiServ system integrates telephony functions with the LAN and Internet to provide a state-of-the-art communication facility with local and remote access to email mixed-media messaging.

Before you begin, you should be familiar with the following LAN and Internet protocol and addressing information.

Network

A network is a distributed interconnection of multiple voice and data communication devices utilizing network protocol software to communicate and exchange information.

Protocol

A protocol is a set of rules and methods by which telephone equipment and computers exchange information across a network. Networking software generally implements multiple levels of protocols in the process of interconnecting two or more devices on the network and enabling them to exchange information.

Transport Protocols

Among the various transport protocols available, AltiServ uses the **TCP/IP** transport protocol.

TCP/IP - Transmission Control Protocol/Internet Protocol (TCP/IP) is the protocol used on the Internet.

A **protocol stack** is a collection of actual protocol layers used to establish a connection across the network that allows dissimilar network devices to exchange information.

SMTP/POP3

SMTP—Simple Mail Transfer Protocol. *As seen by the client side* of the network, is an Internet email *sending* protocol software format.

POP3—Post Office Protocol Version 3. *As seen by the client side* of the network, POP3 is an Internet email *retrieving* protocol software format that allows users to retrieve mail from its stored location.

IMAP4—Internet Message Protocol Version 4. An enhanced version of POP3 that, among other things, allows the user to view message headers of each message before retrieving the complete message.

Network Address

A network address is an identifier for a node, station, or unit of equipment in a network. There are many methods of accessing the network, such as email or Hyper Text Transport Protocol (HTTP), Gopher, etc.

Altiserv uses the email client/server access method.

A sample email client/server network address might look something like the following example:

jsmith@earth.science.berkeley.edu

This address tells the routers and the Internet Service Provider (ISP) where to deliver this message. This is an extended address. The address is read from the right to the left:

edu = first level domain

berkeley = second level domain

science = third level domain

earth = fourth level domain

@ = at

jsmith = user name

Or it might be as simple (and short) as:

altigen.com

com = first level domain name

altigen = second level domain name

Local Address

When you are sending messages among users in a LAN, the local address is used in place of the extended network address. Local addressing is used in a peripheral node or station and is transformed to or from an extended address for delivery purposes. Often within a LAN, the domain is assumed to be the local domain if no *@domain* is added to the address.

Mixed-Media Messaging

Messaging includes many options other than just text. Messages might include all of the following types of information or any combination thereof:

- Text - (includes word processing files, spreadsheets, database listing)
- Voice
- Fax
- Video

If you include more than one attachment or media type in your email messages (such as graphics, video, or sound), you must employ a method called **MIME** (Multipurpose Internet/Mail Extensions). **MIME** is a technique designed to bundle attachments within individual email messages.

When a **MIME** file with attachments arrives at your workstation, additional processing begins immediately. As the various attachments arrive, the client or browser identifies these attachments by file type or by description information in the attachment tag (as specified by the **MIME** format). After the client or browser identifies a file, it can handle the file playback or display. Sometimes the client or browser itself handles playback or display (including .GIF and .JPG files).

When other kinds of files show up and need special handling capabilities (beyond the scope of most client/browsers), the client hands off the files to other **Helper Applications** for playback or display. Helper Applications are designed to read and process the files and to present the file contents on demand.

AltiWare provides users with the ability to record a voice annotation and attach it to an email mixed-media message. This voice recording must be done before the user sends the email in order to send the voice annotation as an attachment to the email. After the voice recording is complete, the user can send the email. AltiWare then combines the voice message and the email into a single MIME message and sends it to the recipient. The ability to send and receive MIME messages is included as part of AltiWare email capabilities.

Setting Up Email Service

There are some basic requirements that must be met in order to access Mixed-Media Messaging using email over the AltiServ system.

Before You Begin

To set up email for the AltiServ system, you need to have the following installed on the AltiServ:

- Windows NT network interface card installed and Windows NT network capability enabled
- Network TCP/IP installed and configured
- Internet connection (if sending and receiving emails over the internet)
- Multi-media stations/PCs as clients

Setting Up LAN and Internet Email on the Server

To set up the server side of the network, follow the steps below:

Step 1: Selecting Your ISP and IP Addresses

You will need to obtain the following to setup Internet email:

1. Select your **Internet Service Provider (ISP)**. There are numerous ISPs to choose from. There is a fee associated with these services. For details, please contact an ISP that serves your area.
2. From your ISP:
 - Obtain a **Domain Name Server (DNS) Address**. AltiServ address should be added to the DNS database by your ISP.

- Select and give your ISP a unique **Domain Name**. Each domain must have a unique name associated with it, such as the address for AltiGen, which is “altigen.com”.
- Obtain a **Block of IP Addresses** and assign a unique IP address to each client on the LAN.
- Obtain the **Subnet Mask**. You will need to enter this address later in the TCP/IP configuration setup for both the server and client stations.

Step 2: Setup the Router

Install the router on the LAN. The router is the gateway to another LAN or to the Internet.

1. Specify a router that is on the same LAN as the AltiServ server, such as ISDN or T1.
2. Assign an IP address (one of the block of IP addresses obtained from the ISP to the router). This becomes the **gateway** router address.

Step 3: Configure TCP/IP Properties

Configure the TCP/IP protocol parameters.

Setting Up Email Service

1. Open the **Control Panel** and select the **Network** icon. The **Network Setting** window is displayed.



Figure 1. Network Setting window

- Click the **Protocols** tab, then double click on **TCP/IP Protocol** from the drop-down list box. The **TCP/IP Protocol** window appears (see Figure 2), where you configure the IP Address, Subnet Mask, and Default Gateway (router).

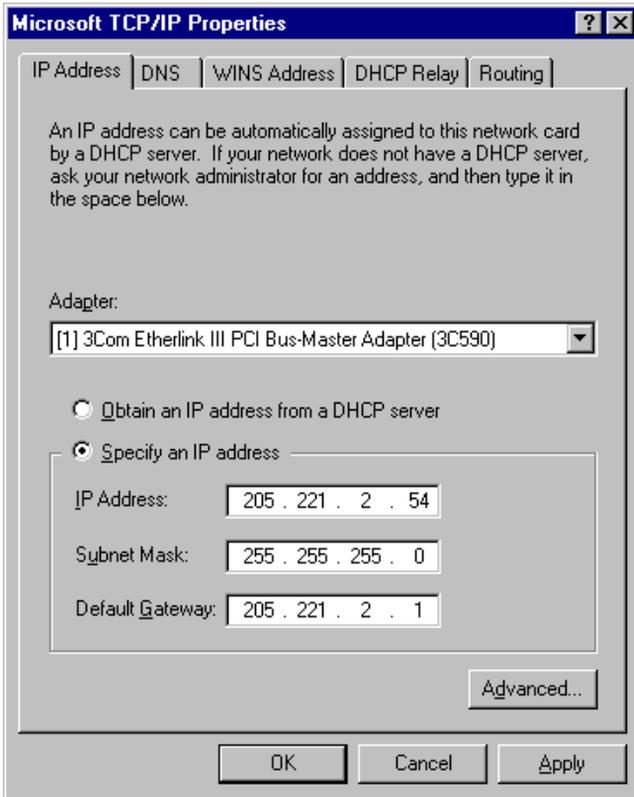


Figure 2. TCP/IP Configuration

- **IP address**—enter the assigned IP address (from the block of IP addresses obtained from your ISP) to the Altiserv.
 - **Subnet Mask**—enter the Subnet Mask obtained from your ISP.
 - **Default Gateway**—enter the email Gateway (the router address).
- Select the **DNS** tab at the top of the TCP/IP Properties window (see Figure 3) to configure **Domain Name System**.

Note: You must configure the DNS tab if you want to exchange email through the Internet.

Configure the following:

- **Host Name**—enter the name of the server (for example: melody)
- **Domain**—enter the domain name (for example: altigen.com)
- **DNS Service Search Order**—enter the IP address of either your own or your ISP’s Domain Name Server.

4. Click **OK**.

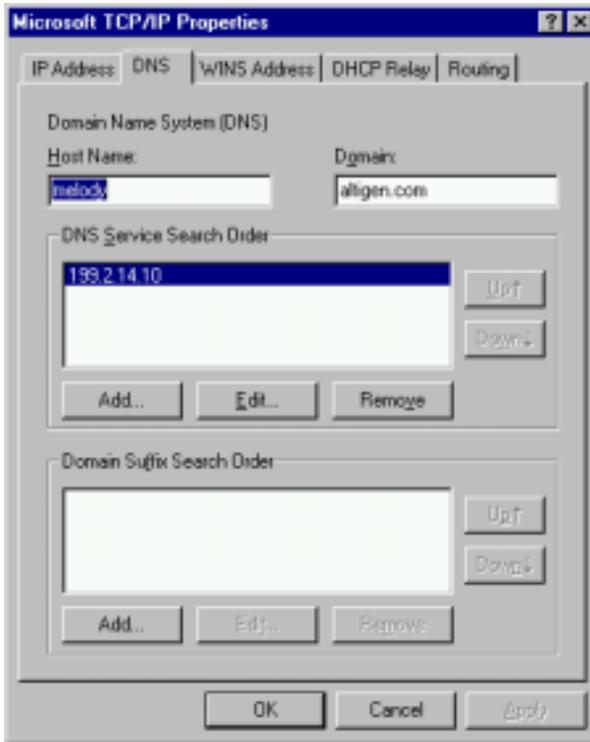


Figure 3. DNS Configuration window

5. Refer to Microsoft Windows NT configuration documentation to complete the TCP/IP network setup.

Step 4: Notify Your ISP of the Following:

1. Your AltiServ Host Name (host name of the server or server name)—your AltiServ is the server that actually receives the mail or messages. For example, AltiGen has named its server “global_cti.” This tells the

DNS to route all mail or messages for altigen.com to the global_cti server.

2. Your AltiServ's IP address (e.g., 200.133.204.2).

Step 5: Configure Email in AltiWare Administrator

Important: If you have a Windows NT or Windows 2000 server, you must stop the Default SMTP Site server, or it will conflict with AltiWare's SMTP server. Do the following:

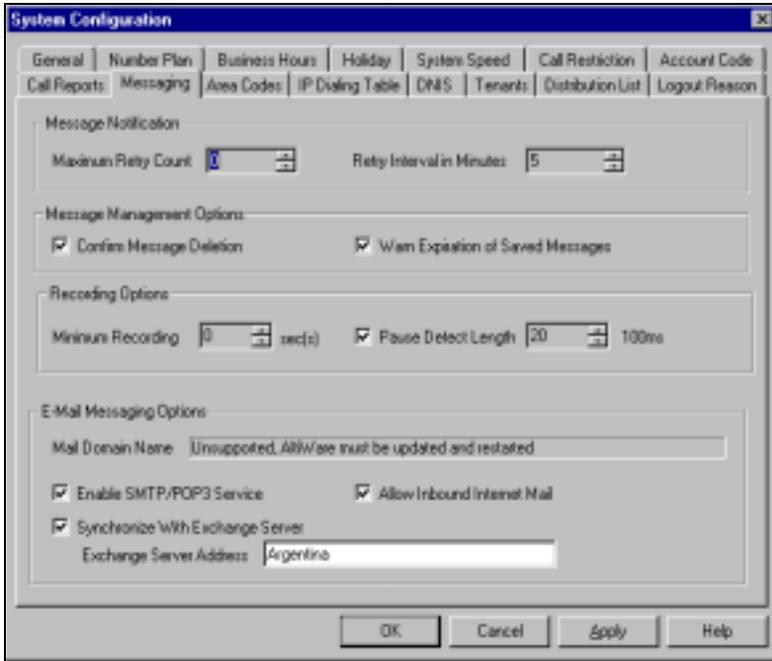
- 1) In AltiWare, go to the Management menu, select **System Configuration...** and click the **Messaging** tab to open the Messaging window. Be sure that **Enable SMTP/POP3 Service** (in the E-Mail Messaging Options field group) is deselected.
- 2) Open the Windows Internet Information Services window by right-clicking the **My Computer** icon and choosing **Manage** from the popup. Expand **Services and Applications** in the tree to view **Internet Information Services**.
- 3) Select **Default SMTP Site** in the tree.
- 4) On the toolbar, click the **Stop** button.

You can now proceed with the steps given below.

To configure the AltiServ for email service:

Setting Up Email Service

1. On the Management menu, select **System Configuration...** and click the **Messaging** tab to open the Messaging window:



2. Configure the **E-Mail Messaging Options** group as follows:
 - Select **Enable SMTP/POP3 Service** to enable email and Mixed-Media Messaging on the AltiServ system.
 - Select **Allow Inbound Internet Mail** if AltiServ is the only mail server running on the system. If you are running another SMTP server on the same system (such as Exchange) and you do not want AltiServ to receive inbound Internet mail, you should leave this box unchecked.
3. Assign a unique **Email Name** to extension users in the **General** window of **Extension Configuration**.
 - Select the extension number (or select **Add Extension** and then enter the extension number in the field provided if this is a new extension).
 - Enter the email name in the **E-mail Name** data entry field(see Figure 1).

4. Allocate the system storage capacity for extensions in the **Mailbox Setting** window of **Extension Configuration**.

Each user's needs might be different. The default is 50 MB of storage, which on the average, will give each user room for 100 messages. Refer to "Setting the Mailbox Options" on page 240 for more details.

Setting Up LAN and Internet Email on the Client

To set up the client side of the LAN:

1. Configure the following client **TCP/IP Properties**(see Figure 2):
 - IP Address
 - Subnet Mask
 - Default Gateway
2. On the **DNS** tab of TCP/IP Properties, enter the following(see Figure 3):
 - Host Name
 - Domain
 - DNS Service Search Order
3. Configure the following mail server parameters of the email client application:
 - Enter the **Mail Server (POP3) User Name**. (This is the same name entered as the email name on the Altiserv **General** page of **Extension Configuration**).
 - Enter the **Incoming Mail (POP3) Server** address.
 - Enter the **Outgoing Mail (SMTP) Server** address.

Setting up an Exchange Server

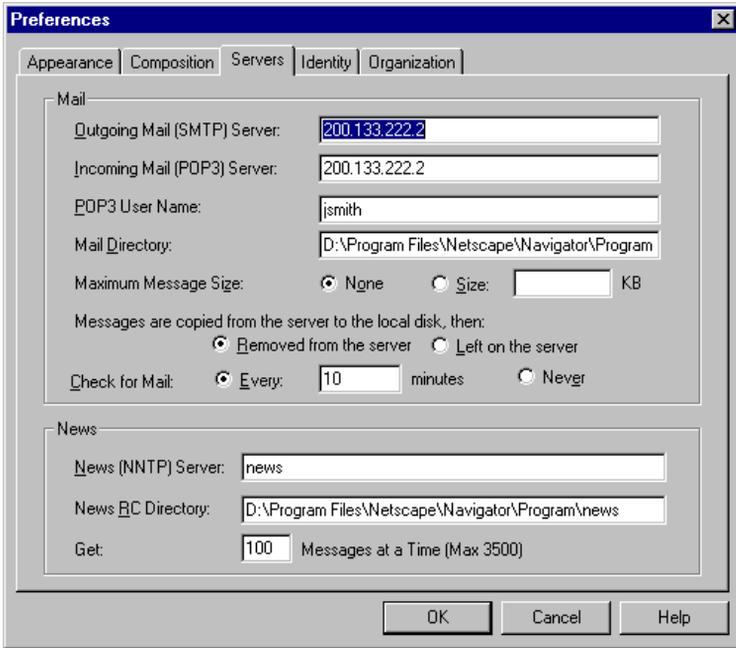


Figure 4. Netscape Mail Server Setup

4. Set up helper applications and general preferences for the email client application (i.e., associates the .WAV files with sound recorder application).

Setting up an Exchange Server

This section provides you with step-by-step instructions to configure the Exchange Integration feature in AltıWare OE, for the Microsoft NT 4.0 server and the Microsoft NT 2000 server.

Exchange Server Windows NT 4.0 Integration

In the example that follows, the AltiServ system is called **TELESYSTEM**, and the Exchange Server is called **MAILSERVER**, and both systems belong to the NT domain called **ALTICHINA**.

EIAssist Aids Exchange Server Integration

AltiWare Exchange Integration Assistant (EIAssist) is designed to help customers synchronize AltiWare messaging services with Microsoft Exchange Server. Basic functions include:

- Retrieving relevant configuration information from AltiServ.
- Viewing and configuring AltiServ messaging and messaging services.
- Adding and editing physical extensions in AltiServ.
- Modifying AltiServ extension user names as needed for synchronization with Exchange Server.
- Retrieving mailbox information from Microsoft Exchange Server.
- Associating AltiServ extension users with Exchange mailboxes, and associating Exchange mailboxes with AltiServ extensions.
- Checking the Microsoft Exchange messaging system.
- Viewing and modifying Microsoft Exchange services.

EIAssist should run on Windows NT 4.0 (or higher). It connects with AltiServ via DCOM. In Windows NT 4.0, DCOM is a default function. EIAssist connects with Microsoft Exchange Server via MAPI. For it to work, make sure your computer has installed Microsoft messaging system. Installing Outlook from Microsoft Office 97 makes the messaging system available.

If EIAssist is not already installed and available, you can install EIAssist by TBD. Use the **Help** menu if you have questions on using this utility application.

Prerequisites

Two NT servers:

- One NT server with the AltiWare OE software.
- One NT server with Exchange Server software.

AltiServ System Prerequisites

- Windows NT 4.0 with Service Pack 6a or higher.
- AltiWare OE software version OE 3.5 or higher.
- The AltiServ system and the Exchange server system must belong to the same NT domain.
- AltiGen Services should be started with the user account `<Domainname>\AltiGen_<AltiserveSystemName>`. For example, `ALTICHINA\AltiGen_TELESYSTEM`.

To check the Windows NT version:

Click the **Start** button, select **Run**, and type **winver** in the Run dialog box.

This opens an About Windows NT dialog box that displays the version of NT running on your system. It should say:

Version 4.0 (Build 1381: Service Pack 6)...Revised
Service Pack 6a

If you have an older version of NT, upgrade to the latest version. Check <http://www.microsoft.com/ntserver> to get the latest service pack for Windows NT.

To check the AltiWare version:

Select **About** from the **Help** menu of AltiWare Administrator. The version displayed should be AltiWare OE 3.5 or higher.

If you have an older version, contact AltiGen Technical Support to find out how to upgrade to the latest version of AltiWare.

To check the domain:

On the AltiServ system, go to **Start** → **Settings** → **Control Panel** → **Network**. In the Identification tab of the Network dialog box, verify

that you see two text boxes, **Computer Name** and **Domain**. Note down the value in the Domain field.

Repeat the same steps on the Exchange server system and make sure the domain names are the same.

To verify Altigen Services:

1. Select **Start** → **Control Panel** → **Services**. A Windows Services dialog box will be shown, as in this example.

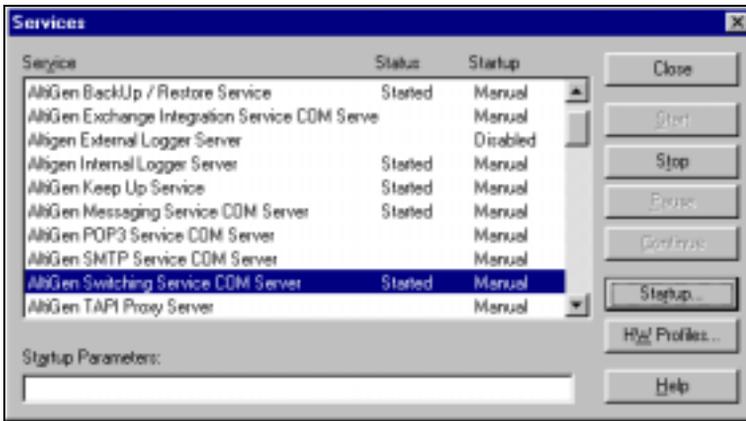


Figure 5. Windows Service window

2. Select **Altigen Switching Service COM Server** from the control panel of Altiserv.

3. Highlight the AltiGen Switching Service Com Server and click the **Startup** button. A Service startup options dialog box will popup:



Figure 6. Service Startup options dialog box

4. Complete the entries in this dialog box as follows:
 - In the **Log On As** group, select **This Account** and set **<DomainName>AltiGen_<ServerName>** as the account. In this example, it is **ALTICHINA\AltiGen_telestsystem**.
If this is not the case, you need to re-install AltiWare while logged in as a domain administrator with local administrator privileges.
 - Repeat the previous step, but this time, check the **Log On As** account for **AltiGen Exchange Integration Service COM Server**.

Exchange Server Prerequisites

- Exchange Server 5.5 with Service Pack 3.
- Successful ping to the AltiServ and *vice versa*.
- Exchange Server Services Must be Started

To check the NT version:

Click the **Start** button, select **Run**, and type **winver** in the Run dialog box.

To check the Exchange Server version:

Click **About** in the Exchange Administrator.

To ping the Exchange Server from Altiserv and *vice versa*:

From the Altiserv system, open a MS-DOS window, and type `ping <exchange server name>`, then press enter.

For example, type `ping mailserver`. You should see `Reply from...` as the response. If you see `Request timed out`, there is something wrong with your network settings or connectivity.

Similarly, ping the Altiserv system from the Exchange server. For example, from the command prompt in Exchange Server, type `ping telesystem`, then press enter. You should get proper reply.

To check that all Exchange Server Services Have Started:

1. Open the Control Panel and click the **Services** icon to view the Services window.

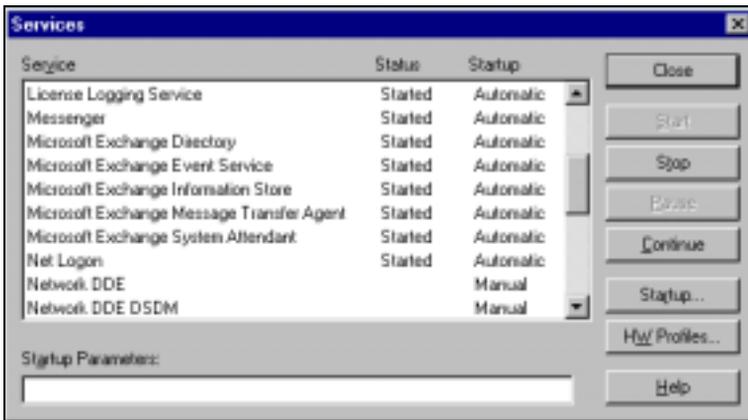


Figure 7. Exchange Server Services Window

2. Check the status of the following services to see if they are started:
 - Microsoft Exchange Directory
 - Microsoft Exchange Event Service
 - Microsoft Exchange Information Store
 - Microsoft Exchange Message Transfer Agent
 - Microsoft Exchange System Attendant

If any of these services are not started, select the service and click **Start** in the Services window to start it.

If a service cannot be started, please contact Microsoft technical support.

Exchange Server Configuration

Now that you have verified that the AltiServ and the Exchange Server systems are properly installed, you can start configuring the two systems to enable the Exchange Integration feature. In this section, we describe the configurations to be performed in the Exchange Server.

For testing purposes, create an Exchange mailbox for NT account `<Domain>\AltiGen_<AltiservSystemName>` (e.g. `ALTICHINA\AltiGen_TELESYSTEM`).

Open the **Exchange Administrator** on the Exchange Server and do the following:

1. Select **New Mailbox** from the **File** menu.
2. Input a mailbox name, for example, first name **AltiGen**, last name **Assist**, display name **AltiGen Assist** and alias name **AltiGenA**.
3. Click **Primary Windows NT Account** and in the dialog box, select `<Domain>\AltiGen_<AltiservSystemName>` (e.g. `AltiGen_telessystem`). After setting the primary NT account, your

dialog box should look the example that follows(see Figure 8). Click **Apply** to create the mailbox.

The screenshot shows the 'Altigen Assist Properties' dialog box with the following fields filled:

- Name:** First: Altigen, Last: Assist, Alias: AltGenA, Display: Altigen Assist
- Address:** (Empty)
- Title:** (Empty)
- Company:** (Empty)
- Department:** (Empty)
- Office:** (Empty)
- Assistant:** (Empty)
- Phone:** (Empty)

At the bottom, there is a button labeled 'Primary Windows NT Account...'. The status bar at the bottom shows: Created 3/2/00 4:23 PM, Home site: ITGTEST1, Home server: ARGENTINA, Last modified 3/2/00 4:23 PM. Buttons for OK, Cancel, Apply, and Help are at the very bottom.

Figure 8. Adding a mailbox to Exchange Server

4. Click the primary NT account and select **Use Existing Account**. This account can then be added from the user manager window. Remember that this can only be achieved if Altigen has an account in the same domain as the Exchange Server or a trusted domain.
5. Give **Service Account Admin** rights to Altiserv service account in the Exchange server. (See Note 3 on page 327.)

Microsoft Exchange Administrator Configuration

1. In Microsoft Exchange Administrator, highlight the Organization container. (Organization is the top item in the hierarchy on the left of the Exchange Admin window.)

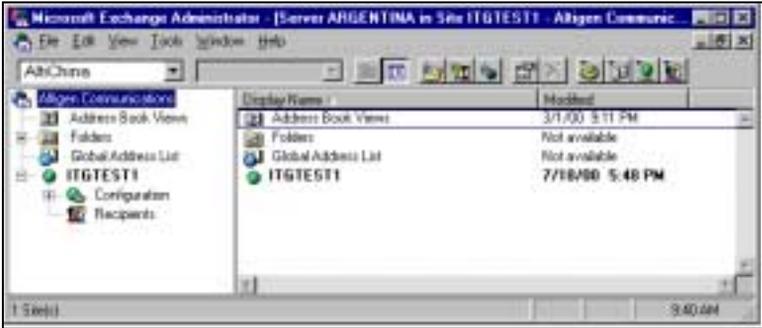


Figure 9. Microsoft Exchange Administrator

2. Select **Properties** on the **File** menu, then click **Permissions** to get a window such as the following:

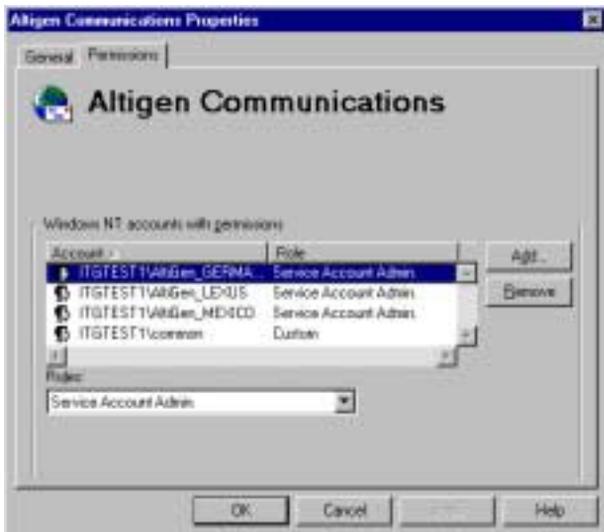


Figure 10. Properties window, Exchange Object

3. Add <Domain>\AltGen_<AltiservSystemName> (e.g. AltGen_telematics) account to the account list.

4. Change the accounts role to **Service Account Admin** from the **Roles** combo box(see Figure 10).
5. Repeat the above two steps for the **Domain** and **Configuration** containers. The name of Site is **ITGTEST1**. The name of Configuration is **Configuration**.
6. Stop and restart all the services of Exchange Server, or reboot the Exchange server.

Installing Outlook 2000 Client on the Altiserv System

Outlook 2000 has two modes: **Internet Only** mode and **Corporate or Workgroup** mode. To enable the Exchange Integration feature, you **MUST** configure it to use **Corporate or Workgroup** mode.

If you have already installed Outlook 2000 in the Altiserv system, make sure that you have installed it in the **Corporate or Workgroup** mode. This is discussed on page 319.

To install Outlook 2000 to Corporate or Workgroup mode:

1. Install Outlook 2000 from the Outlook 2000 or Office 2000 CD. During installation, you will be prompted to choose a mode (**Internet Only** vs. **Corporate or Workgroup**). Make sure you choose the **Corporate or Workgroup** mode.
2. After installation is complete, start Outlook 2000 from **Start → Programs**. In the Microsoft Installer wizard, select **Microsoft**

Exchange Server to install, then click **Next** to move to the next window.

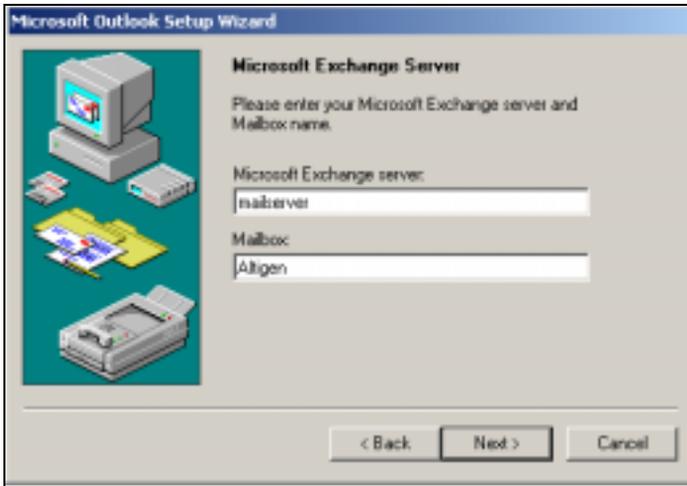


Figure 11. Outlook setup, Exchange Server Name and Mailbox

3. In the above dialog box, type in values for the **Microsoft Exchange Server** and **Mailbox**. Enter the name of the Exchange server, and enter the test mailbox we created (*Altigen Assist*) in the Mailbox field.
4. Click the **Next** button to bring up the next dialog box, which asks a Travel question, to which you should answer **No**, then click **Next**.
5. Once you have completed the Setup Wizard, a final dialog box appears, indicating that the information services that have been added to your profile. Then a **Done!** dialog box appears; click **Finish** to end this part of configuration.
6. If the values you entered for **Microsoft Exchange Server** and **Mailbox** are correct, you will be able to use Outlook 2000 now. If they are not correct, you'll be asked to re-enter the **Microsoft Exchange Server** and **Mailbox** names. Make sure you enter the correct values. You can verify your input by clicking the **Check name** button.

To check the Outlook 2000 mode:

1. Start Outlook 2000. Select **Tools** from the menu options.

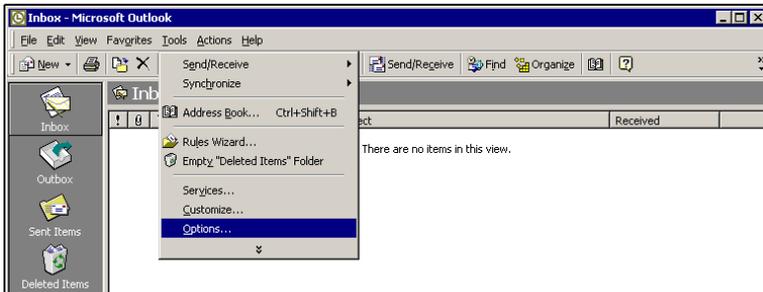


Figure 12. Outlook Tools menu

2. If there is a menu item **Service**, it means Outlook 2000 is in the mode of **Corporate or Workgroup**. You can move on to the next set of steps. If there is a menu item **Accounts**, it means Outlook 2000 is in the mode of **Internet Only**. Perform the following steps to change Outlook 2000 to the mode of **Corporate or Workgroup**.
3. Click **Options...** to open the Options dialog box, and select **Mail Delivery**.



Figure 13. Outlook Options

Setting up an Exchange Server

- Click **Reconfigure Mail Support...** to open the E-mail Service Options dialog box.



Figure 14. Email Service Options

- Select **Corporate or Workgroup** and click **Next**. When a dialog box pops up, click **Yes**.

To configure an Outlook 2000 profile:

- Start Outlook 2000. Select **Services...** on the **Tools** menu to open the Services dialog box.

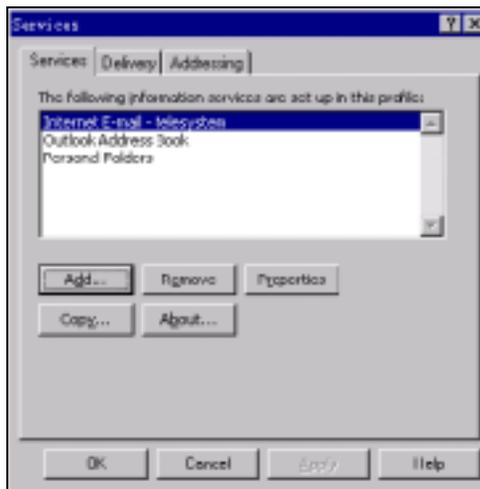


Figure 15. Outlook Services

If **Microsoft Exchange Server** is in the list of services in this profile, proceed to “Enabling the Exchange Server” on page 322.

If **Microsoft Exchange Server** is *not* in the list of services, proceed as follows.

2. Click **Add** to open the Add Service to Profile dialog box. Add **Microsoft Exchange Server, Outlook Address book** and **Personal Folders** to profile.

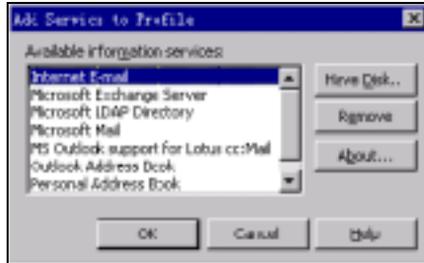


Figure 16. Add Services to Profile

3. In the Microsoft Exchange Server dialog box that opens, type the Exchange Server name in the **Microsoft Exchange Server** field and the test mailbox name (e.g. **AltiGen Assist**) in the **Mailbox** field.
4. Click **Check Name**. If you entered valid values, the names will be underlined and the **Check Name** button will be grayed out. Click **Apply** and then **OK**.

You will see **Microsoft Exchange Server** in the list in the Services window.

5. **Optional:** Select **Microsoft Exchange Server** in the list box, and click **Properties** to see its configurations. The **Microsoft Exchange Server** dialog box appears. If you need to, you can use this Properties dialog box to change the name of **Microsoft Exchange Server** and **Mailbox**.

To Test the configuration:

1. Restart Outlook 2000 at least once. Test the configuration by sending an email, then check if you receive it.
2. When the reboot is complete, log on using the AltiGen service account.
3. Open Outlook, and from the **Tools** menu, select **Services**.
4. Click **Add** and select **Exchange Server**. The Mailbox field should already be populated with the *Name* entered above.

5. Enter the Exchange Servers hostname and click the **Check Name** button. Both the Mailbox and Exchange Server should now be underlined.

This completes setting up AltiServ and Exchange server systems properly, and you are ready to enable the Exchange Integration feature. *Please remember you MUST have completed the previous steps before moving ahead.*

Enabling the Exchange Server

1. Delete obsolete files from \altiserv\exe directory.
 - a. From Windows NT Explorer, go to the \altiserv\exe folder. If *mapi32.dll* and *gapi32.dll* remain in this folder, delete them.
2. In AltiWare Administrator (**AltiAdmin**), configure the extensions that are to be synchronized with their corresponding mailboxes in Exchange server.
 - a. From the **Extension Configuration General window** (example below), select an extension that needs to be synchronized with Exchange.
 - b. Type the **First Name** and **Last Name** exactly as they appear in the corresponding Exchange mailbox in the **Global Address List of the Exchange Server**.

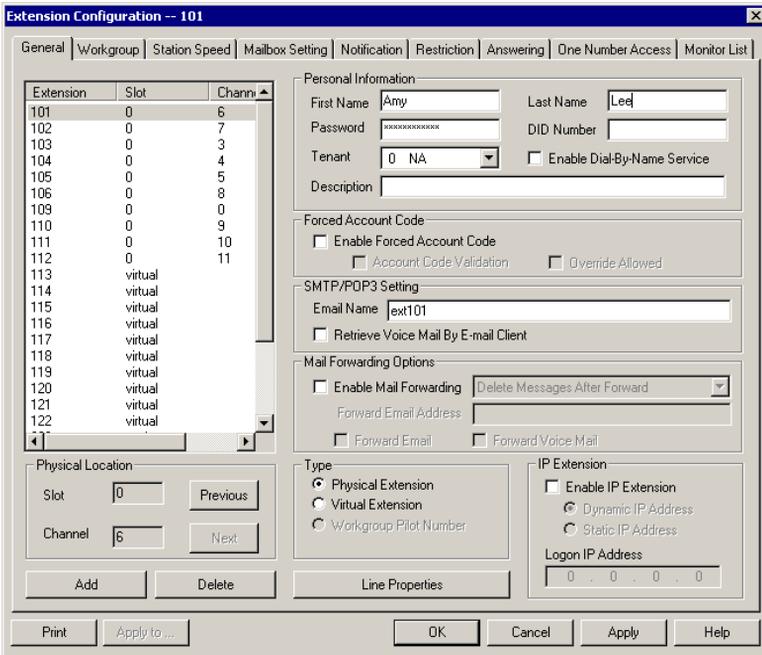


Figure 17. General window, Extension Configuration

Make sure that the **E-mail Name** field contains alphanumeric characters only and does not contain other characters such as spaces () or periods (.).

3. In Exchange Administrator, ensure that for each mailbox in Microsoft Exchange Server to be synchronized, the **First Name** and **Last Name** are exactly as they appear in their corresponding extensions in AltAdmin.

Important:The **Middle Initial** field should be *empty* for Exchange Server mail accounts in order for Exchange Integration to work properly.

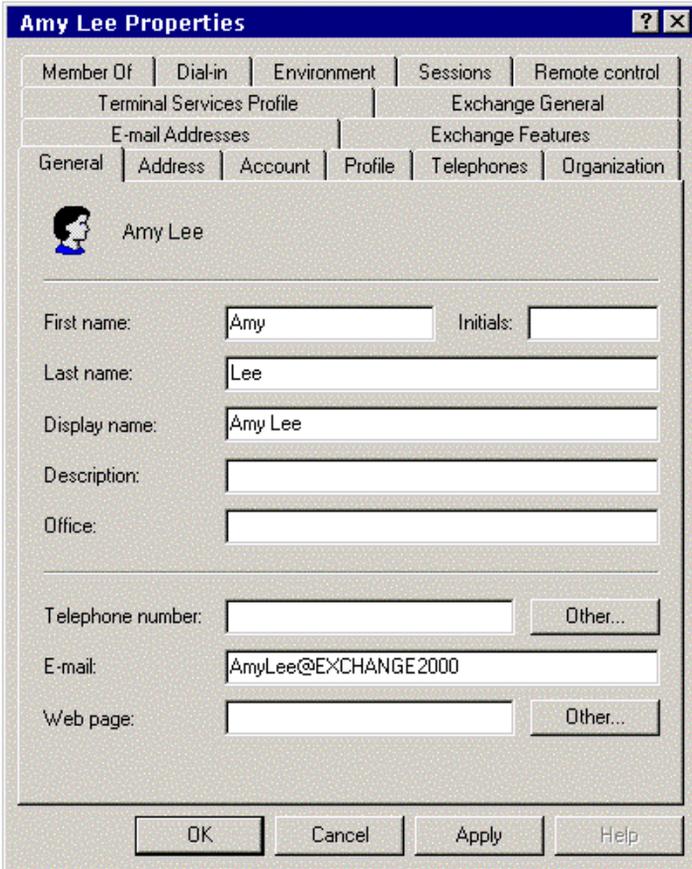


Figure 18. Mail account configuration in Exchange Administrator

4. Use these preceding steps to double check the synchronization of all mailbox names used jointly by AltiServ and Exchange Server.

Enable the Exchange Integration feature in AltAdmin

1. In AltAdmin, select **System Configuration** from the **System Management** menu.
2. Select the **Messaging** tab, and under the **E-mail Messaging Options**, check the **Synchronize with Exchange Server** box only.

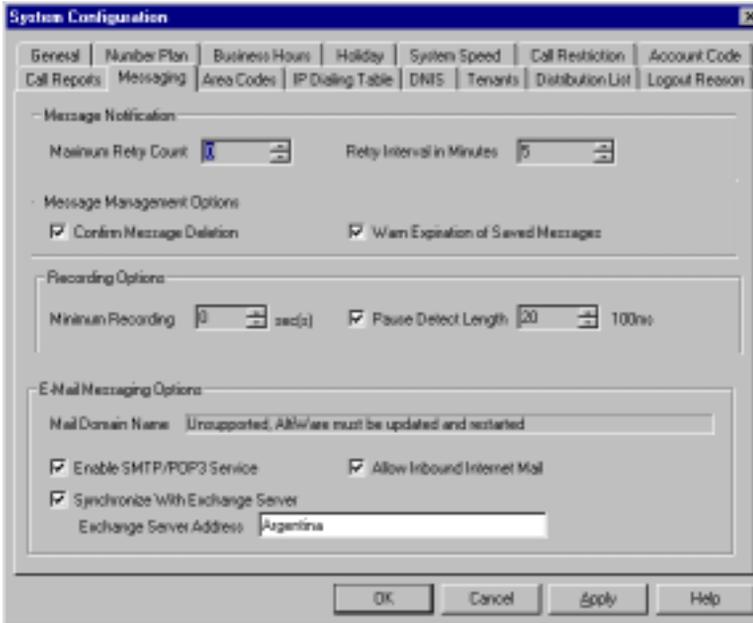


Figure 19. Messaging window, System Configuration

3. Enter the *name* of the Exchange Server (e.g. **MAILSERVER**) in the space provided and click **Apply**.

This completes the configuration for the Exchange Integration feature.

Testing the Exchange Server Setup

You can use some simple procedures to make sure that the Exchange Integration feature is working correctly.

To test the integration, set up an extension in Altiserv (e.g., 100) and its corresponding mailbox in Exchange server. Also, set up a PC with Outlook 2000 configured for this user.

To Test Message Delivery to Exchange:

1. Leave a voice mail for extension 100. The message light illuminates.
2. Log on to the Exchange Mailbox from Outlook and check for the message in the inbox. The message should be titled **VoiceMail from xxx** and include the voice mail as a .WAV attachment.

To check Message State Change Notification:

1. Log in to extension 100's voice mail from a phone. The message you left in the preceding step should be there as a new message.
2. Save the message by pressing 3. Within approximately a minute, the message in Outlook will become a saved message as well—it will no longer appear in **bold**.

To Listen to VM in Outlook:

Open the message in Outlook, and open the .WAV attachment. It should be the same message.

To check Deletion Notification:

1. Delete this message from Outlook.
2. Wait for a couple of minutes, and then log on to extension 100's voice mail from a phone. The voice mail should no longer be there.

If any of these tests fail, consult the “Troubleshooting Tips” section.

Troubleshooting Tips

To check profiles:

1. Log on to the AltiServ system as the AltiGen service account (e.g. **AltiGen_teleystem**).
2. Select the **Mail Icon** from the Control Panel.
3. Click **Show Profiles**. For the test mailbox there should be profiles named such as **AltiExch<ServerName><FirstName><LastName>** (e.g. **AltiExchMAILSERVERAmyLee**).

If you don't see any such profile, make sure that \altiserv\exe folder does not contain the files *mapi32.dll* or *gapi32.dll*. If these files exist, delete them, then stop and start the Exchange Integration Service.

To delete old profiles:

If an error occurred while AltiWare was creating mail profiles, the damaged profiles would remain there until removed manually. After the re-configuration, the new profiles can't be created since the old ones still exist.

You can remedy this as follows:

1. Logon as AltiGen Service Account
2. Shutdown Altigen Exchange Integration Service from Control Panel \ Services, then open the **Control Panel\Mail** (or Mail and Fax) and click **Show Profiles**. Remove all the profiles such as **AltiExch<ServerName><FirstName><LastName>** (e.g. **AltiExchMAILSERVERAmyLee**).
3. Delete all the files under **\Altiserv\db\SynchStorage*** (e.g. **SynchStorageExt100**).
4. Start the **AltiGen Exchange Integration Service** from Control Panel \ Services.

If this doesn't work, contact AltiGen Technical Support (see "Registration & Technical Support" on page 429).

Notes

- Email client confirmed to work on the AltiServ system is Outlook 2000 (using **Corporate or Workgroup** mode). Note that this is the client installed on AltiServ host. The client running on the end user computer is irrelevant.
- Prevent attempts by the Exchange Administrator to use the existing service account for the AltiGen Exchange Integration Service. Using the AltiGen service account will provide you an audit trail that is invaluable while troubleshooting.
- Depending on the number of emails you have on the Exchange server, the initial mailbox synchronization may take a long time.

For example, if you have 10GB emails on the Exchange server and are enabling Exchange Integration for all the mailboxes, it may take up to 24 hours to initialize the Exchange Integration service.

On the other hand, if you have less than 100MB of email on the Exchange server, the initialization will take less than 5 minutes.

Setting up an Exchange Server

- When checking the profiles using the mail icon in the control panel of Altiserv, you should see one account for each mailbox. You will see these profiles only if you are logged on as the Altigen service account (e.g. **Altigen_telesystem**).

Exchange Server 2000 Integration

In the example that follows, the Altiserv system is called **ALTIWARE4_1** and the Exchange Server is called **GOLDMINE**. Both systems belong to the NT domain called **HAPPINESS**.

Important: The Windows 2000 server must be the Primary Domain Controller.

Prerequisites

Two Windows servers:

- One Windows NT server with the Altiserv OE software
- One Windows 2000 server with Exchange Server 2000 software

Important: When you install the Exchange Server, you must log in as the Domain Administrator, NOT the Local Administrator.

Also note that the Windows 2000 server must be the Primary Domain Controller.

Altiserv System Prerequisites

- Windows NT 4.0.
- Altiserv OE software version OE 4.5 or higher.
- The Altiserv system and the Exchange server system must belong to the same NT domain.
- Altigen Services should be started with the user account **<Domainname>\Altigen_<AltiservSystemName>**. For example, **HAPPINESS\Altigen_ALTIWARE4_1**.

To check the Windows NT version:

Click the **Start** button, select **Run**, and type **winver** in the Run dialog box.

This opens an About Windows dialog box that displays the version of Windows 2000 running on your system. It should say:

Version 4.0 (Build 1381: Service Pack 6)...Revised Service Pack 6a

If you have an older version of NT, upgrade to the latest version. Check <http://www.microsoft.com/ntserver> to get the latest service pack for Windows NT.

To check the AltiWare version:

Select **About** from the **Help** menu of AltiWare Administrator. The version displayed should be AltiWare OE 4.5or higher.

To check the domain:

On the AltiServ system, go to **Start**→**Settings**→**Network and Dial-up Connections**. In the left panel of the Network and Dial-up Connections window, click the **Network Identification** link. Verify that you see two text entries, **Full Computer Name** and **Domain**. Note the value in the Domain field.

Repeat the same steps on the Exchange server system and make sure the domain names are the same.

To verify AltiGen Services:

1. Select **Start**→**Programs**→**Administrative Tools**→**Services**. A Windows Services dialog box will be shown, as in this example.

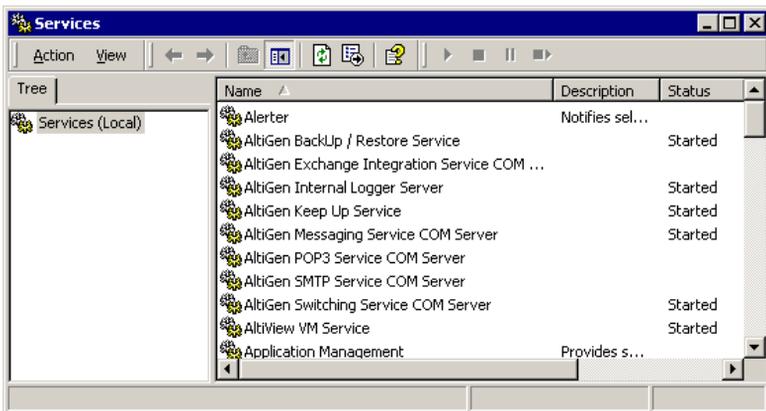


Figure 20. Windows Services window

Setting up an Exchange Server

2. Double-click **AltiGen Switching Service COM Server** to launch its Properties dialog.

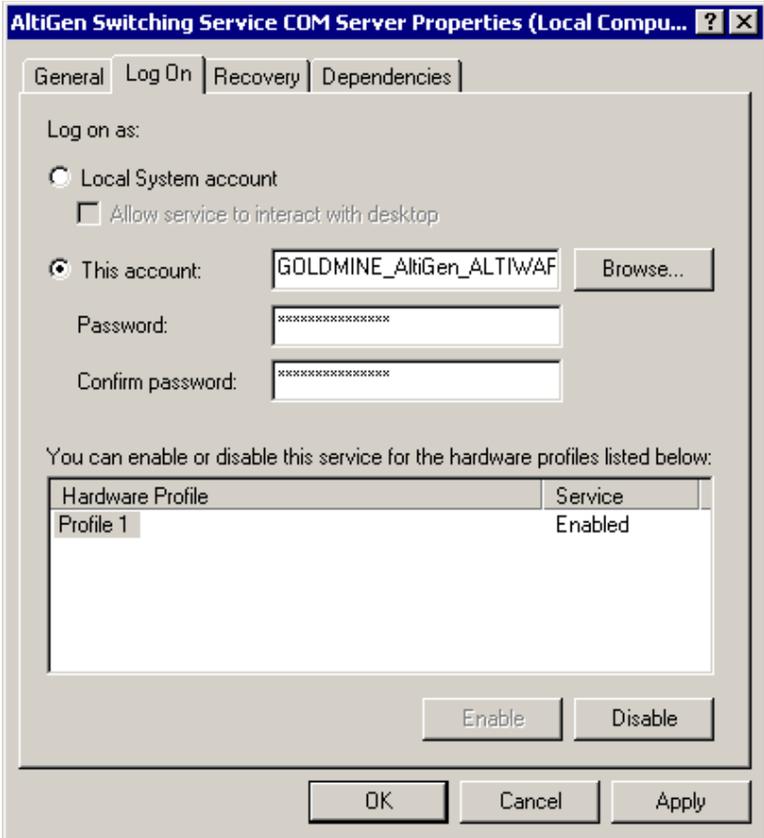


Figure 21. Service Properties dialog box

3. In the **Log On** tab, set **<DomainName>\AltiGen_<ServerName>** as the account. In this example, it is **GOLDMINE\AltiGen_ALTIWARE4_1**.

If this account is not available, you must reinstall AltiWare while logged in as a domain administrator with local administrator privileges.

Exchange Server Prerequisites

- Exchange Server 2000 software

Important: When you install the Exchange Server, you must log in as the Domain Administrator, NOT the Local Administrator.

Also note that the Windows 2000 server must be the Primary Domain Controller.

- Successful ping to the AltiServ and *vice versa*
- Exchange Server Services must be started

To check the Windows 2000 Server version:

Click the **Start** button, select **Run**, and type **winver** in the Run dialog box. It should say:

```
Windows 2000 Server Version 5 (Build 2195: Service Pack 1)
```

Service Pack 1 is the minimum required.

To check the Exchange Server version:

Click **About** in the Exchange Administrator.

To ping the Exchange Server from AltiServ and *vice versa*:

From the AltiServ system, open a MS-DOS window, and type `ping <exchange server name>`, then press enter.

For example, type `ping mailserver`. You should see `Reply from...` as the response. If you see `Request timed out`, there is something wrong with your network settings or connectivity.

Similarly, ping the AltiServ system from the Exchange server. For example, from the command prompt in Exchange Server, type `ping ALTIWARE4_1`, then press Enter. You should get the proper reply.

To check that all Exchange Server Services Have Started:

1. Open the Control Panel and click the **Services** icon to view the Services window.

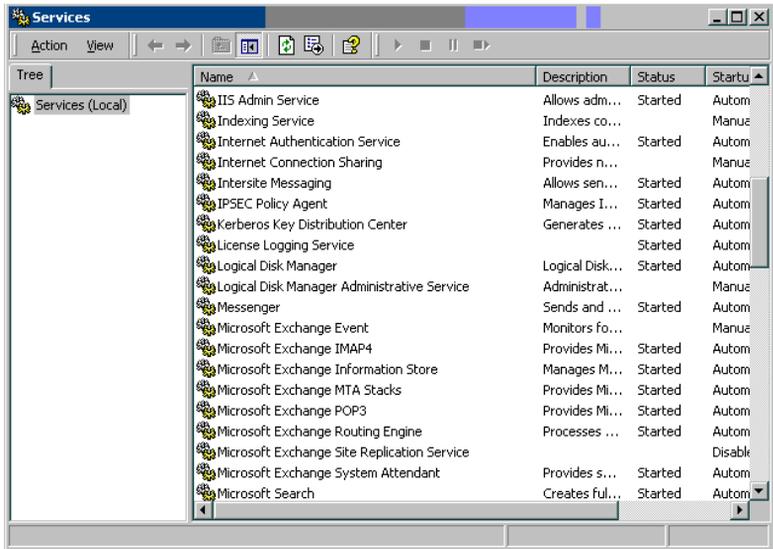


Figure 22. Exchange Server Services Window

2. Check the status of the following services to see if they are started:
 - Microsoft Exchange Event
 - Microsoft Exchange IMAP4
 - Microsoft Exchange Information Store
 - Microsoft Exchange MTA Stacks
 - Microsoft Exchange POP3
 - Microsoft Exchange Routing Engine
 - Microsoft Exchange Site Replication Service
 - Microsoft Exchange System Attendant

If any of these services are not started, select the service and click the Start arrow in the Services window to start it.

If a service cannot be started, contact Microsoft technical support.

Microsoft Exchange Administrator Configuration

1. From the Windows **Start** menu, launch **Programs** → **Microsoft Exchange** → **System Manager** to open the Exchange System Manager window.
2. In the Exchange System Manager window, expand the Servers to locate the Exchange 2000 server. Right-click its name to pop up a menu; select the **Properties** command to open the Properties dialog.
3. In the Properties dialog, select the **Security** tab and click the **Add** button to open a Select dialog.
4. In the Select dialog, highlight the AltiWare server name and click the **Add** button below.

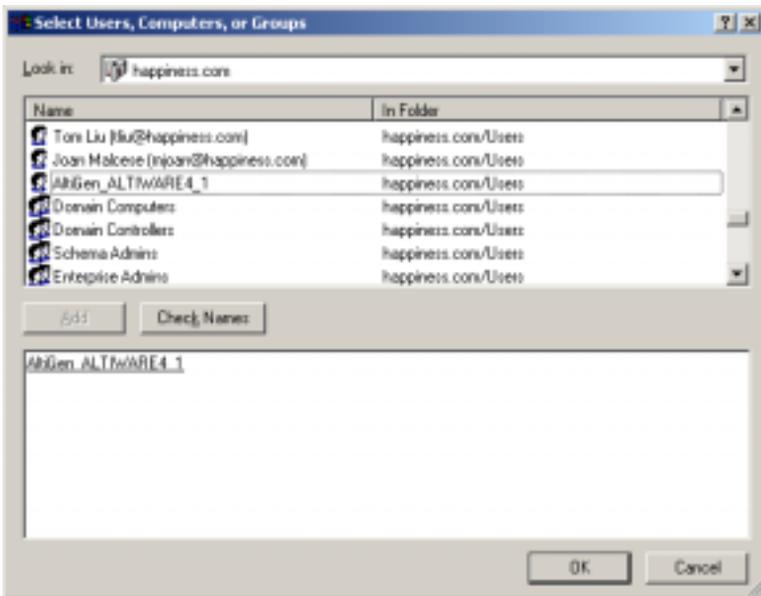


Figure 23. Adding the AltiWare server

5. Click **OK** to close this dialog and return to the Security tab of the Properties dialog. Select the AltiWare server and assign **Full Control**

in the **Permissions**. Select the **Allow inheritable permissions...** option.

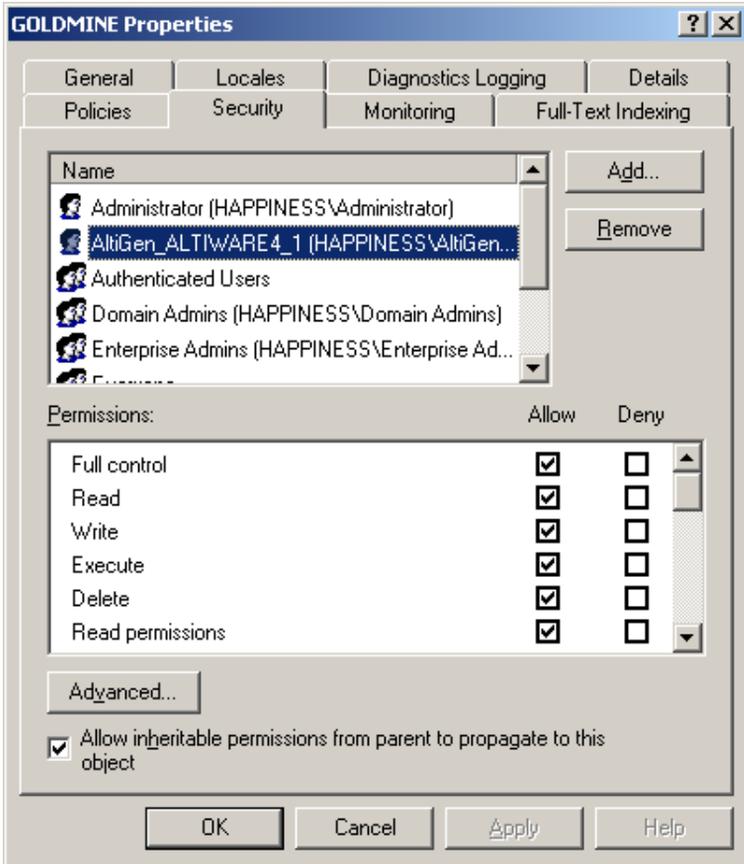


Figure 24. Assigning permissions to the AltiWare server

Checking the AltiGen Service Account

Check to see that the AltiGen Service account has been added properly.

1. From the Windows **Start** button, launch **Programs** → **Microsoft Exchange** → **Active Directory User and Computers**.
2. In the left panel of the Active Directory User and Computers window, expand the domain name, then open the **Users** folder. Locate the server name as the AltiGen Service account in the list of Users.

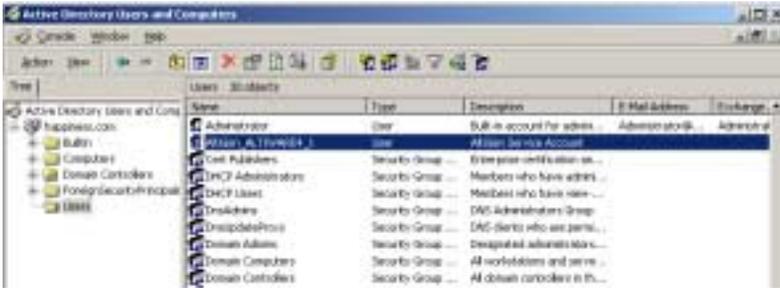


Figure 25. The AltiGen Service Account

Installing Outlook 2000 Client on the AltiServ System

(Same as settings for Exchange Server for Windows NT 4.0 Integration, follow steps under “Installing Outlook 2000 Client on the AltiServ System” on page 317.

Enabling the Exchange Server

(Same as settings for Exchange Server for Windows NT 4.0 Integration; follow steps under “Enabling the Exchange Server” on page 322.

Testing the Exchange Server Setup

(Same as settings for Exchange Server for Windows NT 4.0 Integration; follow steps under “Testing the Exchange Server Setup” on page 325.

Troubleshooting Tips

(Same as settings for Exchange Server for Windows NT 4.0 Integration; follow steps under “Troubleshooting Tips” on page 326.

Notes

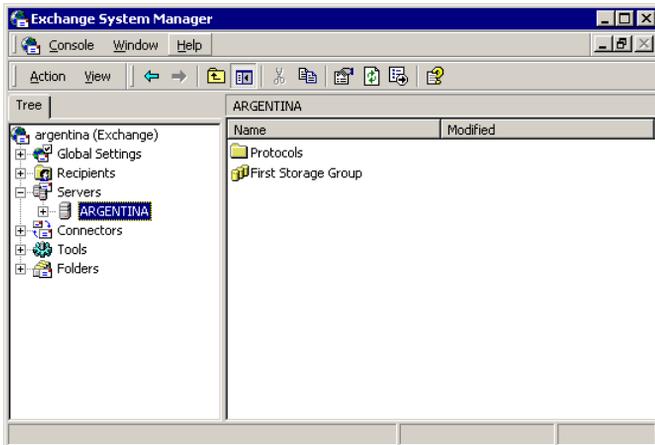
(Same as settings for Exchange Server for Windows NT 4.0 Integration; follow steps under “Notes” on page 327.

Exchange on Windows 2000

To set up Exchange Server integration with Windows 2000:

First, on the machine running Exchange server:

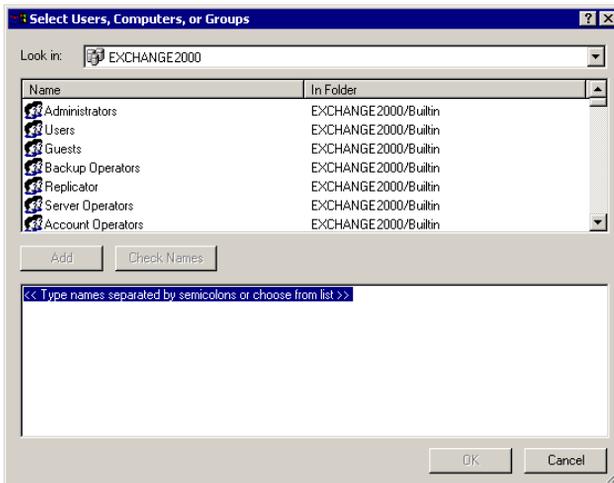
1. Run Program> Exchange> System Manager>Server



2. Right-click on the name of Exchange Server to integrate.



3. Go to Properties>Security>Add>name of Altigen Server linked up.



In AltWare, enable the “**Exchange Message Synchronization**” check box in the Mailbox Setting of the user in Extension Configuration. Then, enable the “**Synchronize With Exchange Server**” checkbox and add the name of the Exchange server in the Messaging window of System Configuration.

To troubleshoot this integration, you may 1) run an Exchange Server Trace or 2) login to AltWare as Domain Administrator. Open Outlook and right-click to Properties, and look for show profiles.

About AltiReach Configuration

The AltiReach Call Management system allows AltiServ to provide remote and local desktop call management to users using the Intranet or Internet via a standard Web browser.

AltiReach is installed and configured automatically when you install AltiWare. The configuration settings differ depending on the version of the Microsoft Internet Services Manager you are running and whether AltiServ is running on Windows NT or Windows 2000.

To troubleshoot or double-check the server configuration:

- **Internet Services Manager (IIS) 2.0 and 3.0:** In the Microsoft **Internet Services Manager** → **WWW (Running)** settings, the **Home** directory is set to `c:\altiserv\webmgmt` (where **c:** is the local drive on which AltiWare is installed). In the **Properties** for this directory, the access privileges allow **Read** and **Execute**.
- **Internet Services Manager (IIS) 4.0 and higher:** In **Internet Services Manager** → **Default Web Site** → **PropertiesWeb Site** tab, the **IP Address** is set to the address of the AltiWare server.

Under the **Properties** → **Home Directory** tab, the following configuration is established:

- The **Local Path** shows `c:\altiserv\webmgmt` (where **c:** is the local drive where AltiWare is installed). On this local path, **Read** and **Directory Browsing (NT)** or **Directory Browsing Allowed (Windows 2000)** are both selected.
- In the **Application Settings** group:
 - In *Windows NT*, under **Permissions**, the **Execute (including script)** radio button is selected. On the **Execute** is selected.
 - In *Windows 2000*, **Scripts and Executables** is selected in the **Execute Permissions** drop-down list.

Using AltiReach

For instructions on how to use AltiReach and descriptions of all the functions within AltiReach, please refer to the *AltiServ User Guide*.

Using TAPI

If your office has an off-the-shelf application for calling contacts without manually dialing the telephone's keypad that supports the Telephony Application Programming Interface (TAPI), you can install AltiGen's TAPI gateway to use this functionality through your AltiServ installation. An example of such an application would be Microsoft Outlook.

AltiWare implements its service provider based on TAPI 2.1, so applications written to TAPI 3.0 can make full use of all the telephony functions implemented by AltiWare.

AltiGen's TAPI implementation has two components:

- *TAPI Proxy Server* - installed on the AltiServ server system.
- *TAPI Service Provider* - installed on each client system.

Note: With AltiWare OE 4.5, only outbound dialing functions are supported in the TAPI gateway. Users can make outbound calls from their extensions, but call control functions such as transfer, hold, and park, are not supported in OE 4.5.

Also, users cannot make calls through TAPI with an IP phone as the source phone.

System Requirements

Server

- Windows NT Server 4.0 with Service Pack 6a *or* Windows 2000 Server

Note: For Windows 2000 Server, the TAPI client must be installed on a separate PC. Otherwise, it won't be able to detect your devices.

- Network connection with TCP/IP enabled
- Center (Option Pack) license
- One session license for each concurrent TAPI client connection

Client

- Windows 98, Windows NT 4.0 with Service Pack 6a or Windows 2000
- Network connection with TCP/IP enabled
- A TAPI application (Phone Dialer, Outlook, etc.)

Installing TAPI Services

Note: Install the TAPI services (TAPI Proxy Server and TAPI Service Provider) *after* physically configuring your AltiServ system. The TAPI Service Provider will automatically load the AltiServ configuration. If you change the AltiServ configuration after installing TAPI, by physically adding, removing, or moving extensions, you will have to uninstall and reinstall the TAPI Service Provider to reload the AltiServ configuration.

Note: For Windows 2000 Server, the TAPI client must be installed on a separate PC. Otherwise, it won't be able to detect your devices.

To install TAPI Proxy Server on the server:

1. Locate the TAPI Gateway folder on your AltiWare OE CD-ROM.
2. In the Tapi_Server subfolder, run SETUP.EXE.

The service is started automatically. No configuration parameters need be set on the server.

To install TAPI Service Provider on the client system:

1. Locate the TAPI Gateway folder on your AltiWare OE CD-ROM.
2. In the Tapi_Client subfolder, run SETUP.EXE.
3. When prompted, enter the Server IP address, the client's Extension Number, and client's Password.

To test TAPI Service Provider on the client system:

1. Launch *Phone Dialer* from **Start > Programs > Accessories > Communication**.
2. Enter a number to call in the **Number to Dial** box and then click on **Dial**.

Your extension should ring. When you pick up the phone, the system will dial the number you entered and connect you. If this does not work, see "Changing TAPI Configuration Parameters".

Changing TAPI Configuration Parameters

To change TAPI Configuration Parameters:

1. *On Windows NT*, select **Start > Settings > Control Panel > Telephony**.
On Windows 2000, select to **Start > Settings > Control Panel > Phone and Modem Options**.
2. *On Windows NT*, click on the **Telephony Drivers** tab.
On Windows 2000, click on the **Advanced** tab.
3. Choose **AltiGen (TM) Communications Service Provider** and click **Configure**.
4. In the **AltiGen TAPI Device Detect** dialog box, click **Configure**.
5. In the **AltiGen TAPI Configuration** dialog box, click **Extension**.
6. Enter the extension number and password of the entry you want to change and click **Remove**.
7. Enter the extension number and password of an entry to add with new values and click **Add**.

Changing TAPI Configuration Parameters

Setting Up IP Extensions

IP extensions communicate with the AltiServ system using IP-based protocols to carry voice and signaling data. Instead of PSTN, they use a data networking connection such as an Ethernet 10-Base-T (RJ-45). In AltiWare OE Release 4.5, AltiServ supports only those devices that are based on H.323 protocol.

From the end-user's perspective, an IP extension works exactly the same as an analog extension with the added advantage of being able to work remotely and without any cabling requirements. There is also no functional difference in AltiWare features and client applications such as real-time monitoring, AltiView, and AltiConsole, with the following exceptions which are unavailable on an IP extension — #81 Hands free–Intercom mode, #82 (Hands free–Manual answer mode), Distinctive ringing (double ring for internal calls, single rings for external calls).

In addition, the **Location** column in the **Extension View** in AltiAdmin will show the IP address used by any extension currently logged onto an IP extension.

IP Connections and Voice Quality

Voice quality can degrade when multiple IP connections use DSL; the exact numbers will depend on your bandwidth and the number of IP connections active at one time. If you encounter this problem, you may need to reduce the number of IP extensions.

System Requirements

Server

- AltiWare OE 4.0 or higher
- Triton VoIP board(s)—one VoIP port per simultaneous IP extension user is required.
- High-speed WAN connectivity to support remote users (minimum 64kbps per remote user)
- One Station license per IP extension user

Configuration

- Static IP address assigned to each extension configured for an IP connection (recommended, but not required)

Client

- An AltiGen-certified IP phone device (see “Clients” on page 345 for details)
- High-speed data connection to the AltiServ system (minimum 64kbps)

Configuration

You must configure AltiAdmin and, in some cases, your client hardware or software for using IP extensions.

AltiAdmin

1. Ensure that the VoIP gateway is configured properly and works.

For details on configuring the Triton VoIP board and the IP trunks, refer to “Configuring the Triton VoIP Board” on page 173 and “Setting General Trunk Attributes” on page 199.

2. Ensure that you can make calls over IP by creating an entry (at least an entry with the IP address of the AltiServ system) in the IP dialing table and then dialing *<IP Trunk access code> + <IP dialing table entry code> + <extension number>*. Make sure you can have a two-way conversation on this VoIP call.

For details on using the IP dialing table, see “Defining the IP Dialing Table” on page 157. Also see “Setting VoIP Codecs” on page 225.

3. For each extension for which you are enabling IP extensions, check **Enable IP Extension** on the **General** tab of the **Extension Configuration** window.

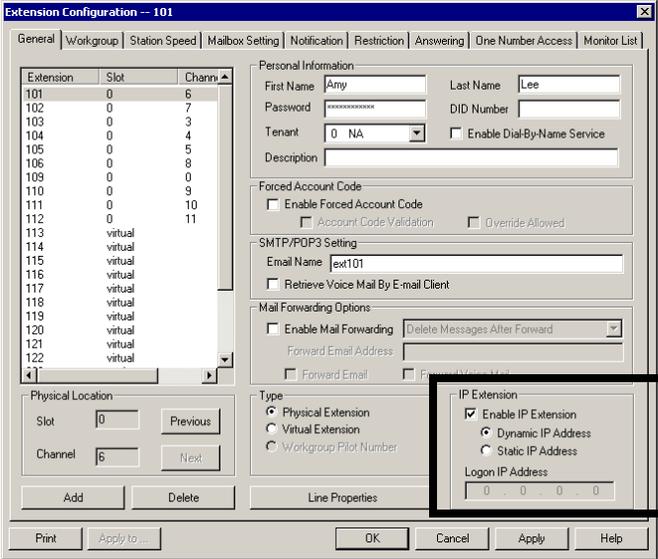


Figure 1. General Window, Extension Configuration

- a. If you have static IP addressing (recommended), choose **Static** and then enter the IP address of the IP phone in the **Logon** field.
- b. If you do not have static IP addressing available, choose **Dynamic**.

Note that dynamic IP addressing will show a *different* IP address in the **Location** column of the **Extension View** every time the extension user enables an IP extension.

Clients

Currently, the following four IP phone/adaptor devices are certified by AltiGen:

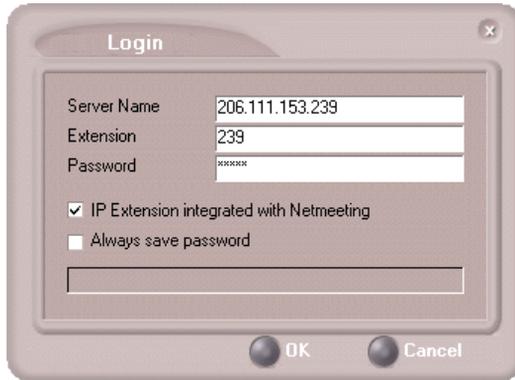
- Quicknet—PhoneJack™ PCI adapter and PhoneCard™ PCMCIA adapter with Internet SwitchBoard™ software
- Siemens HiNet LP5100 IP Phone
- Polycom® SoundPoint® 500 IP Phone
- AltiView integrated with NetMeeting

For details on configuring the first three options, see the documentation that AltiGen provides with each.



AltiView Integrated with NetMeeting

AltiView (versions 4.0 and higher) provides an option called **IP Extension Integrated with NetMeeting** that allows it to use NetMeeting as the IP extension.



In addition to the AltiView software, the client requirements are as follows:

- **A sound card.**
- **A headset** connected to the sound card (Plantronics LS1 recommended, available from retail outlets or from the Plantronics website at <http://www.plantronics.com/computer/ls1.html>).
A microphone and speakers should *not* be used, since the speaker's output would be fed back to the microphone and cause severe echoes.
- **NetMeeting 3.01**, which is automatically installed with Windows 2000. Users can check to see if NetMeeting is installed by looking under **Programs>Accessories>Communication** from the Windows **Start** button. If not, it is available for download from the Microsoft website at <http://www.microsoft.com/windows/netmeeting/download/default.asp>.
- **Additional system requirements** as listed on the Microsoft website at <http://www.microsoft.com/windows/NetMeeting/SystemRequirements/default.ASP>.

Note also that processor-intensive applications will affect voice quality.

Instructions on using this option are also provided in the *AltiView and AltiServ User Guide*.

AltiWeb

AltiWare OE 4.5 integrates VoIP, Auto Attendant, and Microsoft Internet Information Services (IIS) to provide the AltiWeb feature, which allows internet users to talk to an extension via VoIP and share web pages.

System Requirements

- **Client/Server System only:** AltiWare OE Release 4.5 or higher running on Windows 2000 or Windows NT.
- **Client System:** Microsoft Internet Explorer 5.5 or better, or Netscape 4.7 or better, NetMeeting 3.01, and Sound Card.
- **Web Server:** Microsoft Internet Information Services (IIS) 4.0/5.0.

AltiWeb Components

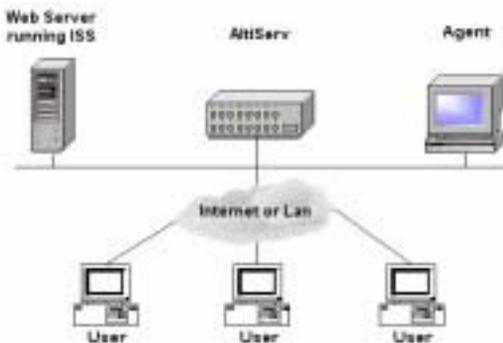


Figure 1. AltiWeb Component Overview

Installing AltiWeb

Make sure AltiWare OE Release 4.5 has been installed on the AltiServ system and the link to TCP/IP is enabled before continuing with CDR Search setup.

1. Log in to the client machine using a domain account and make sure it is connected to the network on which AltiServ is running.
2. Exit all Windows applications.
3. Insert the AltiWeb CD into the CD ROM drive of the IIS web server.
4. Run the Setup.exe program by selecting Start → Run and typing D:/Setup.exe, where D is the letter of your CD ROM drive. Follow the step-by-step installation instructions as they appear on the screen.
5. AltiWeb installs into the Home directory of the IIS server. To verify installation, start IIS, and select Default Web Site. The WebCall directory appears at the bottom of the directory, as shown below.

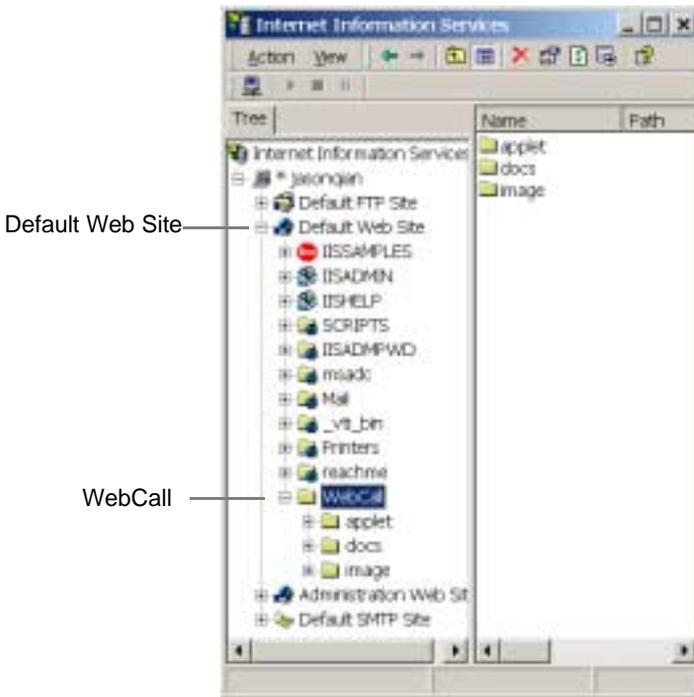


Figure 2. Logical AltiWeb installation in IIS

- Verify the physical location of the AltiWeb directory by right-clicking the Default Web Site, and selecting Properties. On the Home Directory tab of the Properties dialog, the Local Path field shows AltiWeb's physical location on the drive (in this case C:\inetpub\wwwroot\altweb).

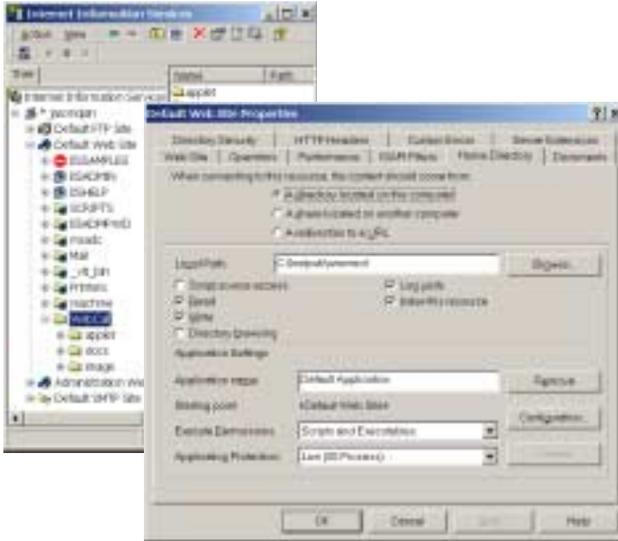


Figure 3. Local Path in IIS Properties dialog

AltiWeb Directory Structure

The AltiWeb directory contains the following subdirectories:

- **Applet**—Sample files you can use to set up AltiWeb. Refer to the following sections for details.
- **Docs**—Documentation on AltiWeb.
- **Images**—Graphics used in the html files residing in the Applet directory.

Applet Subdirectory Files

The Applet subdirectory contains sample pages you can use to set up Web Call, as well as files necessary for proper AltiWeb functioning.

- **Contact.htm**—Customer Information page for use with Auto Attendant
- **contactaltigen.htm**—Customer Information page for use without Auto Attendant
- **customerid.htm**—Page where caller enters customer ID
- **directory.htm**—Template for creating an in-house AltiWeb directory (for internal use only)
- **IVR_top.htm**—Frameset for top.htm and IVRApplet.htm
- **IVRApplet.htm**—Sends connected information to the main AltiWeb applet
- **NetMeeting.htm**—Error message indicating NetMeeting not found and providing opportunity to download
- **Nsapplet.zip**—Contains files necessary for the proper functioning of AltiWeb (Do not modify this file.)
- **Nsplugin.zip**—Contains files necessary for the proper functioning of AltiWeb (Do not modify this file.)
- **productid.htm**—Page where caller enters product ID
- **sales_cid.htm**—Frameset for customerid.htm
- **sales_pid.htm**—Frameset for productid.htm
- **Top.htm**—Collects caller input and sends the result to the next IVRApplet.htm
- **AltiWeb.cab**—Contains files necessary for the proper functioning of AltiWeb (Do not modify this file.)
- **AltiWeb.htm**—Page displaying AltiWeb window
- **AltiWeb.js**—JavaScript file necessary for the proper functioning of AltiWeb
- **Wizard.htm**—Error message advising caller to run the initial configuration for NetMeeting

Collecting Form Data, IVR Data, and URL History

You can configure AltiWeb to display Form Data, IVR Data, and URL History when a web call is answered by an extension with the AltiAgent application.

The IVR data comes from the Auto Attendant/Collect

The Form Data come from the <form name=infoForm> fields in the source code of Contact.htm or Contactaltigen.htm

The URL History shows all URL paths to tagged html pages the caller visited prior to the call.



Figure 4. Caller Data window in AltiAgent

Tagging Pages for URL History

To appear in the URL history, the pages the caller visits prior to the call must be tagged, as shown below:

```
<head>
<script language="JavaScript" src="altiweb.js"></script>
<script language="JavaScript">
tagURL(location.href)
</script>
</head>
```

For more information on configuring:

- **IVR Data:** Refer to “Configuring Auto Attendant for Scenario 2” on page 362.
- **Form Data:** “Customizing Contactaltigen.htm” on page 355 or “Customizing Contact.htm” on page 360.

Scenario 1—Caller Data from Web Page

The following scenario, based on contactaltigen.htm, exemplifies the simplest implementation of AltiWeb.

1. A web caller browses the company web site and has a question regarding some product information.
2. The web caller clicks the "contact us" link on the web page. The Customer Information page (contactaltigen.htm) opens.

The screenshot shows a Microsoft Internet Explorer browser window titled "Customer Information - Microsoft Internet Explorer". The address bar contains the URL "http://206.111.153.243/webcal/apple/contactaltigen.htm". The main content area displays a form titled "Customer Information". Above the form, there are two lines of red text: "Note: Please make sure you have NetMeeting 2.0.1L installed and used it at least once before." and "If you use NT4.0, please start NetMeeting before submit the page." The form itself consists of several input fields with labels on the left: "First Name" (value: john), "Last Name" (value: jdoe), "Company Name" (value: AltiGen), "Email Address" (value: jdoe@altigen.com), "Phone Number" (value: 5102523556), and "Fax Number" (value: 5102524543). At the bottom of the form are two buttons: "Submit" and "Reset". The browser's status bar at the bottom shows "Done" and "Internet".

Figure 5. Contactaltigen.htm page

- The web caller enters the required information, then clicks the Submit button. The AltiWeb window (altiwab.htm) appears.

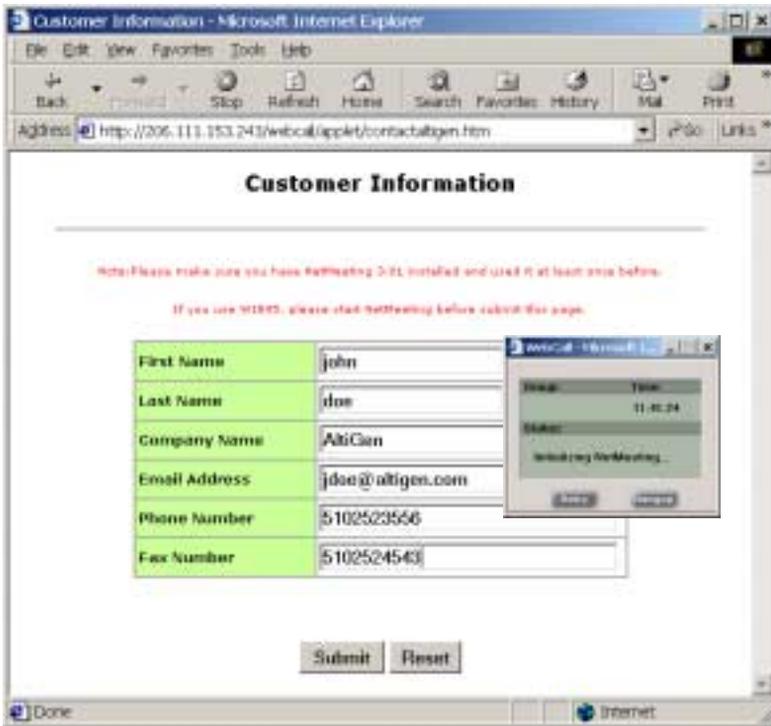


Figure 6. The AltiWeb window

Note: If NetMeeting is not installed on the caller's computer (or it's not configured correctly), an error message displays.

Note: This scenario directly dials a preset extension. You can also set the AltiWeb window to display a DialPad the caller can use to dial any extension. For details, refer to "Customizing Contactaltigen.htm" on page 355.

- Once NetMeeting successfully connects to an AltiGen VoIP port, the web caller is routed to the proper extension.

5. If the call goes to an AltiAgent user, the Caller Data window shows the Form Data and URL history.



Figure 7. Caller Data window in AltiAgent

6. From this point, in addition to voice communication, the agent can push and share web pages with the caller. For procedures, refer to the section on “Viewing, Sharing, or Pushing Data” in the Contact Advantage manual.

Customizing Contactaltigen.htm

You can use the Contactaltigen.htm page to collect caller information, and automatically direct the call to a specific extension. This collected information is then displayed on the agent's screen.

To alter form data:

Using Notepad or another html editor, modify Contactaltigen.htm source code as follows:

1. Change the ServerIP.

Set the value of the ServerIP to the IP address of the server on which AltiWare resides.

```
<input type="hidden" name="ServerIP" value="206.111.153.203">
```

2. Set DialPad visibility.

By default, the code is set to hide the Dial Pad (value = "0") and to dial a specific number (value = "300"). To show the Dial pad, change the values as shown below:

Show DialPad, Let Caller Dial Extension

```
<input type="hidden" name="Extension" value=""><input
type="hidden" name="DialPad" value="1">
```

Hide DialPad, Autoconnect to Extension 300

```
<input type="hidden" name="Extension" value="300"><input
type="hidden" name="DialPad" value="0">
```

3. Alter the data collection fields.

Shown below is the form row that collects the caller's first name. Copy, modify, or delete variables to your company's specifications.

```
<tr>
  <td width="240" bgcolor="#CCFF99"><font size="2"
face="Verdana"><b>First Name&nbsp;</b></font></td>
  <td width="282"><font face="Verdana"><input
type="text" size="20" maxlength="40" name="FirstName"
tabindex="1"> &nbsp;&nbsp;&nbsp;</font></td>
</tr>
```

Scenario 2—Caller Data from Auto Attendant

The following scenario, based on contact.htm, exemplifies a customized implementation of AltiWeb.

1. A web caller browses the company web site and has a question regarding some product information.
2. The web caller clicks the "contact us" link on the web page. The Customer Information page (contact.htm) opens.



Figure 8. Contact.htm page

- The web caller enters the required information, then clicks the Submit button. The AltiWeb window (altiweb.htm) appears.



Figure 9. AltiWeb window with DialPad visible

Note: If NetMeeting is not installed on the caller's computer (or it's not configured correctly), an error message displays.

- Once NetMeeting successfully connects to an AltiGen VoIP port, the web caller sees the Customer Support page, and hears a prompt requesting the selection of Sales or Tech support.



Note: The DialPad is visible to allow the web caller to close the Auto Attendant windows and dial a number directly, if so desired.

5. The caller selects Sales, and the Customer ID window (customerid.htm) appears.



Figure 10. Customer ID window

6. Once the caller enters the customer ID and clicks Submit, the Product ID window (productid.htm) appears.



Figure 11. Product ID window

7. After the caller enters the product ID and clicks Submit, the web caller is routed to the proper extension.

8. If the call goes to an AltiAgent user, the Caller Data window shows Form data, IVR data, and URL history.



Figure 12. Caller Data window in AltiAgent

9. From this point, in addition to voice communication, the agent and caller can share web pages. For procedures, refer to the section on “Viewing, Sharing, or Pushing Data” in the Contact Advantage manual.

Customizing Contact.htm

You can use the Contact.htm page to collect caller information, and then automatically direct the call to a specific extension. This caller information is then displayed on the agent's screen.

To alter form data:

Using Notepad or another html editor, modify Contact.htm source code as follows:

1. Change the ServerIP.

Set the value of the ServerIP to the IP address of the server on which AltWare resides.

```
<input type="hidden" name="ServerIP" value="206.111.153.203">
```

2. Set DialPad visibility.

By default, the code in contact.htm is set to show the Dial Pad (value = "1") and not to dial a specific number (value = ""). To hide the DialPad, change the values as shown below:

Hide DialPad, Autoconnect to Extension 300

```
<input type="hidden" name="Extension" value="300"><input type="hidden" name="DialPad" value="0">
```

Show DialPad, Let Caller Dial Extension

```
<input type="hidden" name="Extension" value=""><input type="hidden" name="DialPad" value="1">
```

3. Alter the data collection fields.

Shown below is the form row that collects the caller's full name.

Copy, modify, or delete variables to your company's specifications.

```
<tr>
```

```
<td align="left" width="128" bgcolor="#CCFF99">
```

```
<b><small><font face="Verdana">Customer Name&nbsp;</font></small></b></td>
```

```
<td width=22 align=left></td>
```

```
<td align=left width=282>
```


Configuring Auto Attendant for Scenario 2

Scenario 2 demonstrates how to use Auto Attendant in conjunction with AltiWeb. For example, when the web caller clicks the Submit button (1), Web Call connects and the Customer Support page appears. When the customer clicks Sales (2), the Customer ID (3) and Product ID (4) pages follow before the caller is put through.

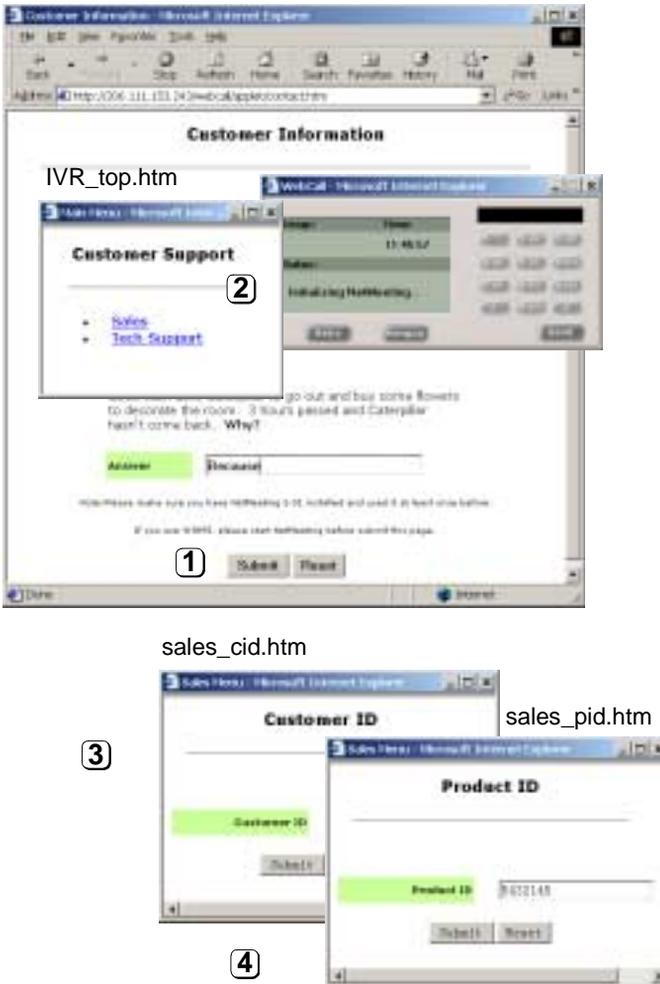


Figure 13. Using Auto Attendant to push pages to the caller

Configuring Auto Attendant

Note: For detailed instructions, refer to Chapter 7, "Auto Attendant Configuration," in the *System Administration Manual*.

1. Run Auto Attendant.
2. Select 0-expand tree.

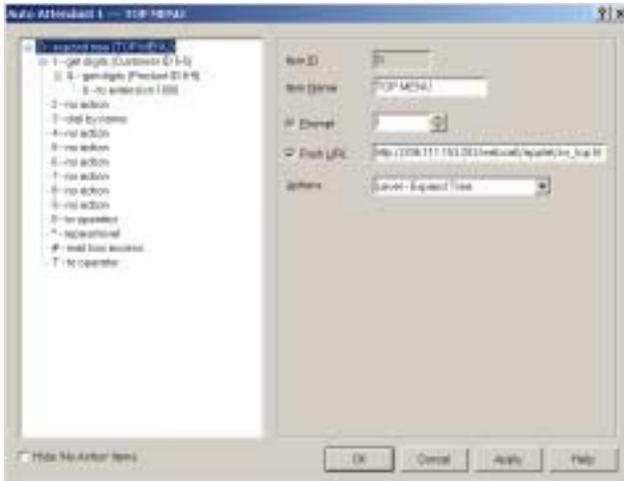


Figure 14. "0 - expand tree" window

3. Make the following entries, then click Apply.
 - Type an Item Name, if desired.
 - To assign a voice message, check Prompt and select the number of the appropriate message.
 - Check Push URL, and type the path of the page you want to display.
 - Select Level-Expand Tree in the Actions dropdown.

Tagging Pages for URL History

4. Select 1-get digits.

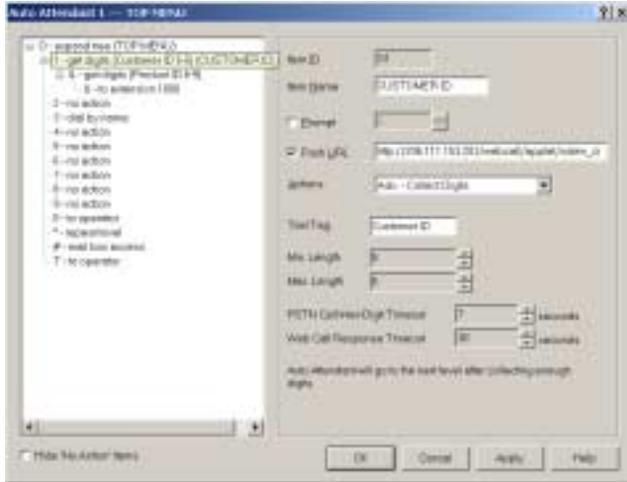


Figure 15. "1-get digits" window

5. Make the following entries, and click Apply.

- Type an Item Name, if desired.
- Check Push URL, and type the path of the page you want to display (e.g., sales_cid.htm).
- Select Adv.- Collect Digits from the Actions dropdown.
- Set the Min. and Max. Lengths that the caller must enter.
- Adjust the Web Call Response Timeout to give the web caller enough time to provide all meaningful information.

6. Select &-get digits.

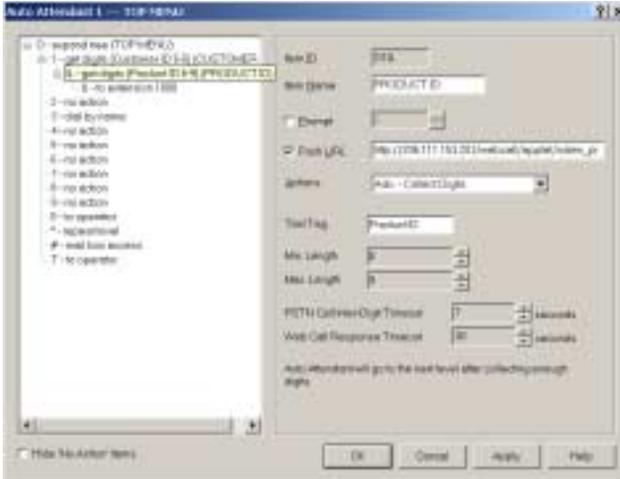


Figure 16. "& - get digits" window

7. Make the following entries, then click Apply.

- Type an Item Name, if desired.
- Check Push URL, and type the path of the page you want to display (e.g., sales_pid.htm).
- Select Adv. - Collect Digits from the Actions dropdown.
- Set the Min. and Max. Lengths that the caller must enter.
- Adjust the Web Call Response Timeout to give the web caller enough time to provide all meaningful information.

8. Select &-to extension.

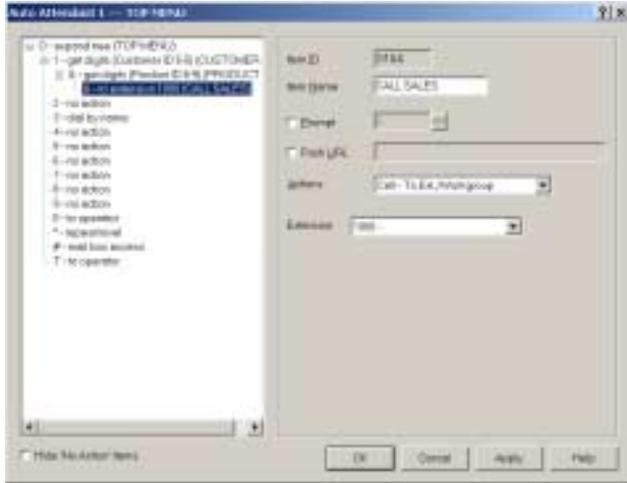


Figure 17. "&-to extension" window

9. Make the following entries, then click OK.
- Type an Item Name, if desired.
 - Select Call - To Ext/Workgroup from the Actions dropdown.
 - Select the Extension.

Troubleshooting

If a web caller cannot connect and an error message displays, the cause may be one of the following:

Error Message	Cause
Server connection failed. Please try again later.	<ul style="list-style-type: none"> • AltiServ IP address is not correct • AltiServ is not running • Firewall is not open
Option Pack is not installed. Please try again later.	<ul style="list-style-type: none"> • AltiServ does not have Contact Advantage 4.5 Option Pack License.
No more available sessions. Please try again later.	<ul style="list-style-type: none"> • All session licenses are used or there are no session licenses at all.

Uninstalling AltiWeb

1. From the Windows Start menu, select Programs → AltiWeb 4.5 → AltiWeb 4.5.
2. Click OK when the dialog box asks if you want to uninstall the program, and respond to any additional prompts.

Alternatively

1. In the Control Panel, select Add/Remove Programs.
2. Choose AltiWeb 4.5 and click the Add/Remove or Change/Remove button, depending on which version of Windows you're running.
3. Click OK in the dialog box to confirm you want to remove the service, and respond to any additional prompts.

AltiWeb Security

AltiWeb (and AltiTouch) uses Microsoft IIS as a web server, which poses web server security issues common to all Microsoft users. AltiGen recommends the following basics steps to protecting AltiWare from antiviruses and worms:

- Update your virus definition every day
- Enable real-time scan and exclude AltiServ and PostOffice folders
- Schedule Daily Full Scan

Computer viruses can penetrate a PC in many ways, network shares, emails, OS security holes, and more. Here are some common practices to follow. If necessary, open shares for READ ONLY. Monitor Microsoft security bulletins for updates. Open only the necessary ports on your firewall.

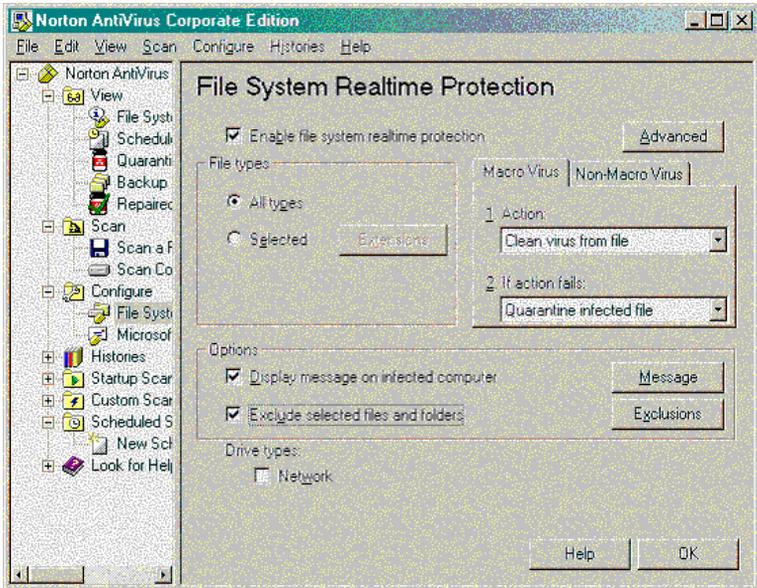
Symantec Norton AntiVirus Corporate Edition 7.5

Update your virus definition every day

For a Corporate Edition version, administrators can receive updates from either a dedicated local server or the Symantec LiveUpdate web site. Please refer to Norton Administration menu on how to set up a dedicated local server.

To receive updates from the Symantec LiveUpdate web site

1. Click on File menu and choose schedule updates
2. Check enable scheduled automatic updates and click Schedule button
3. Set it for Daily at 8:00 PM



To receive updates on the fly, Click on File menu and choose LiveUpdate and get the latest virus definition.

Enable Real-Time scan

1. Click on Configuration menu and choose File System Realtime Protection
2. Check Enable File System Realtime Protection
3. Choose All Files for File Types
4. Check Display message on infected computer
5. (optional) Click Advanced button and bring up advanced options
6. (optional) Uncheck backup files before attempting repair if your system disk space is small.
7. Check Exclude selected files and folders and click Exclusions button
8. Enable Check file for exclusion before scanning and click Files/ Folders button
9. Find and check Altiserv and Postoffice folders and click OK

Schedule Daily Full Scan on all drives

1. Choose Edit menu and New Scheduled Scan
2. Edit the job name, ex, Daily Full Scan. Click Next
3. Set the frequency as Daily 9:00 PM and click Next
4. Check all the local hard drives and click Options
5. Choose All Files for File Types and set the CPU utilization for 50%
6. Click OK and Save

Now you have set it for daily scan for all files on your hard drives.

CHAPTER 18

Tools

AltiWare OE comes with the following tools for testing, diagnosing and configuring your system:

- Configuration Reader
- Extension Checker
- MVIP Test Tool
- AltiDBReader
- Multisite Configurator (available from AltiGen web site)

Configuration Reader

Configuration Reader is a tool that creates a subdirectory in `\altiserv\EXE\AltiWareHtml\` of html files showing details of your AltiWare configuration. Another file, `altigen_rc.dat`, summarizes all this information and can be sent to your dealer or to AltiGen Tech Support if you have problems.

To use Configuration Reader:

1. Launch Configuration Reader from AltiWare>AltiWare Tools on the Windows Start button.

A DOS window opens, indicating the progress of Configuration Reader.

2. When the status window is complete, you can press **Y** to view the html files showing your configuration.

Columns across the top of the opening page let you view statistics on different components of your configuration.

Extension Checker

Extension Checker is a tool checks the security status of every extension in your AltiWare system.

Extension Checker

Generally, an extension is considered secure if its password meets the following conditions:

- contains 4-8 digits
- different from extension
- different from default system password
- does not consist of consecutive numbers
- does not consist of a repetition of the same digit

Security characteristics of each extension are detailed in the application window itself.

To use Extension Checker:

1. Launch Extension Checker from AltiWare>AltiWare Tools on the Windows Start button.
2. Select the security characteristics you want to check in the **Show** field group, described below.

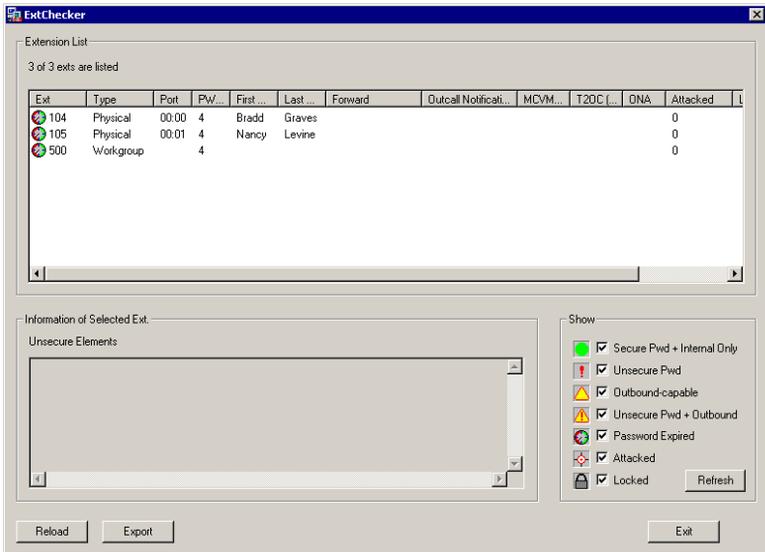


Figure 1. Extension Checker

Status	Description
Secure Pwd + Internal Only	Has secure password and cannot make outbound trunk calls
Unsecure Pwd	Password has unsecure elements described in Unsecure Elements window
Outbound-capable	Can make outbound trunk calls
Unsecure Pwd + Outbound	Password has unsecure elements described in Unsecure Elements window AND can make outbound trunk calls
Password Expired	Password is expired
Attacked	8 consecutive false password attempts have been made
Locked	Extension has been locked by system due to attack or by System Administrator
Secure Pwd + Internal Only	Has secure password and cannot make outbound trunk calls

3. Click **Refresh**. Extensions with the selected insecure characteristics will appear in the Extension List.
4. Make changes or advise extension user(s) to make changes.
 - **Right-click commands** for each extension in the Extension List let you send the following changes to AltiWare:
 - lock the extension
 - unlock the extension
 - force the user to change the password
 - clear an attack record
5. After changes have been made (for example in AltiAdmin, AltiView, or with right-click commands described above), click **Reload** to fetch the new settings from AltiWare.

Security characteristics for extensions you select in the Extension List display in the Unsecure Elements window.

6. (Optional) Click **Export** to export the data in the Extension List to a text file.

MVIP Test Tool

The MVIP Test Tool is a tool that detects one-way connection, cross talk, bad MVIP cable and static noise problems.

To run MVIP Test Tool:

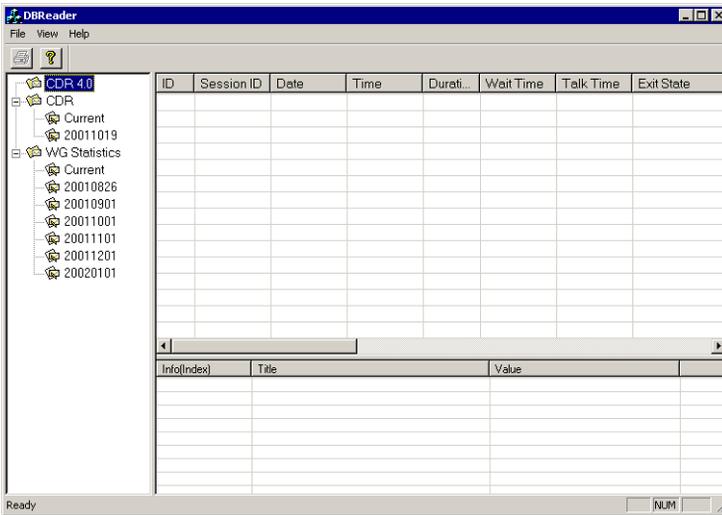
1. Stop AltiGen Switching Services before running this utility.
2. Launch MVIP Test Tool from AltiWare>AltiWare Tools on the Windows Start button.
3. Click **Start** to begin test.
4. If the MVIP Test encounters an error, click **Yes** or **No** to view the error report.
5. At the end of the test, the utility will provide pass or fail results.

AltiDBReader

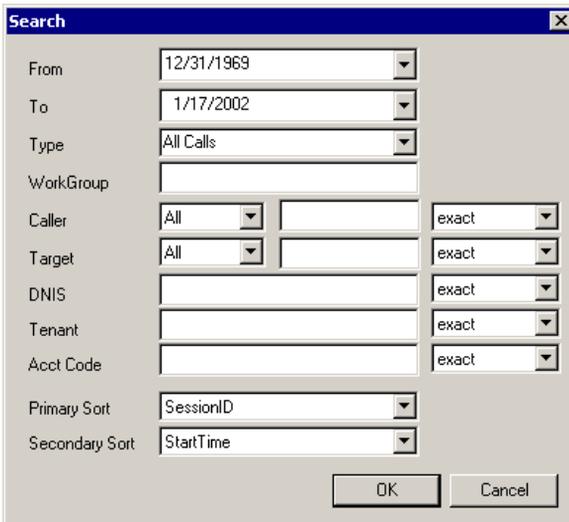
AltiDBReader is a tool that allows you to view and export historical CDR data and Workgroup Statistics. You can also convert 4.0/4.0a CDR files (icc_cdr.dbf) for viewing in AltiDBReader.

To use AltiDBReader:

1. Launch AltiDBReader from AltiWare>AltiWare Tools from the Windows Start button.
2. When launched, AltiDBReader automatically finds and displays DB files from the AltiDB folder into three folder directories (CDR 4.0, CDR and WG Statistics) on the left side of the window.



3. Search a particular DB folder by clicking the mouse cursor on the folder, then **right-click** to open a Search window to perform the search on the DB folder.

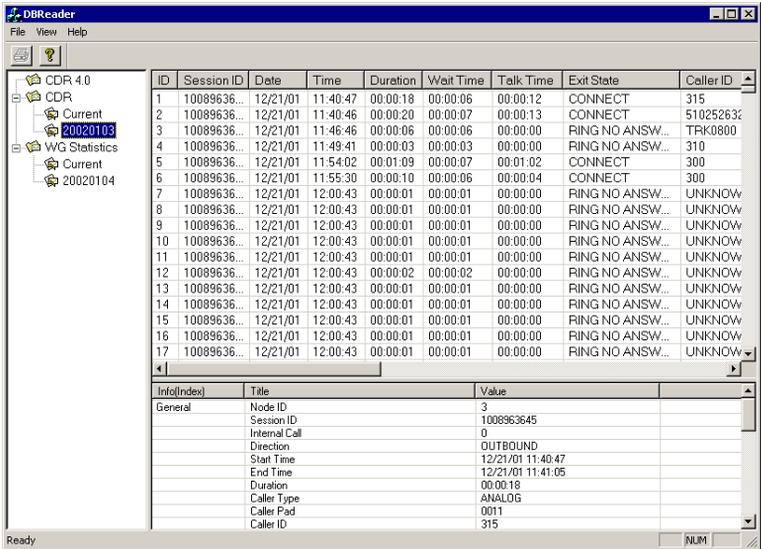


For CDR DB searches, the Search window allows the following search parameters:

- **From** - sets the desired start date to begin the search
- **To** - sets the desired end date to end the search
- **Type** - specifies the call type to search: *All Calls, Answered Calls & Messages, Answered Calls, Messages, Unanswered Calls, Messages, Unanswered Calls, All Trunks Busy, Agent Login/out*
- **Workgroup** - allows user to specify workgroup number to search
- **Caller** - specifies the caller as *All, Extension* or *Trunk*; to further specify this search field, you may add matching digits in the empty field and set to an *exact, like* or *pat* (pattern) match.
- **Target** - specifies the caller as *All, Extension* or *Trunk*; to further specify the search this search field, you may add matching digits in the empty field and set to an *exact, like* or *pat* (pattern) match.
- **DNIS** - to further specify the search this search field, you may add matching digits in the empty field and set to an *exact, like* or *pat* (pattern) match.
- **Tenant** - to further specify the search this search field, you may add matching digits in the empty field and set to an *exact, like* or *pat* (pattern) match.
- **Acct Code** - to further specify the search this search field, you may add matching digits in the empty field and set to an *exact, like* or *pat* (pattern) match.
- **Primary Sort** - specifies the first sorting category the search results will be put into; select: *Session ID, StartTime, CallerNum, CallerName, TargetNum, TargetName, AccountCode, DNIS* or *ExitState*.
- **Secondary Sort** - specifies the second sorting category the search results will be put into; select: *Session ID, StartTime, CallerNum, CallerName, TargetNum, TargetName, AccountCode, DNIS* or *ExitState*.

For **Workgroup** DB searches, the Search window allows the following search parameters:

- **From** - sets the desired start date to begin the search
 - **To** - sets the desired end date to end the search
 - **Interval** - specifies the search interval; select *15 minutes*, *1 hour*, or *1 day*.
 - **Search by** - specifies the type of workgroup search; select *Workgroup Statistics*, *Agent Statistics per Workgroup*, or *Agent Statistics*.
 - **Workgroup** -specifies the workgroup number
 - **Agent** - specifies the agent number
4. Select the desired search parameters and click **OK**.
 5. The search results appear in the fields on the right side of the main window.



- To delete a DB folder, right-click on any DB folder (except “Current”) and select **Delete DB**.

To Show/Export/Print Search Results Data:

- To print the search results data, select the desired DB folder and click the **Print** button.
- To show Advanced Call Info or **Call Info**, right click on any data field and scroll to the desired option.
- To export the search results data as a .CSV file, right-click on any data field and select **Export**.

To Convert 4.0 or 4.0a DB files:

- Select and highlight a DB folder from the CDR 4.0 directory.
- Go to File>Convert Old DB.
- The converted 4.0/4.0a file appears in the DBReader window fields.

Multisite Configurator

Multisite Configurator is GUI-based tool designed to help a customer configure several distributed AltiWare systems synchronously to work as just one AltiWare system. The tool can be run on any server, local or remote to an AltiWare system, that has a connection for access to all the servers that are desired to be managed. The tool respects the individual password protection by checking password access to each of the servers that are desired to be managed before connecting to them. The tool will synchronize extensions and workgroup pilot numbers. It can complete the functions below for multiple systems from a single location and session:

- Create virtual extensions with the correct forwarding parameters for multiple servers for specific extensions desired to be managed.
- Synchronize the extensions with same number in all systems so that all calls to the extension will be presented to the appropriate AltiWare system.
- Synchronize the extensions with same number in all systems so that all voice mails to the extension will be presented to the appropriate AltiWare system.
- Requires 4.5 software

Note: Multisite Configurator is not included with AltiWare tools, and can be downloaded from AltiGen's web site. For more information, contact your Authorized AltiGen Dealer.

Basic & Advanced CallRouter

Basic CallRouter

Basic CallRouter is a call-handling tool included with AltiWare OE software. Basic CallRouter uses the AltiAdmin Auto Attendant and the AltiAPI Data Directed Routing (DDR) features to match incoming trunk call data against existing customer records that you build using the Basic CallRouter GUI. Calls can be intelligently routed before they are answered, based on Basic CallRouter's routing "rules."

Note: The workgroup to which incoming trunk calls will be routed via CallRouter must be assigned to the Auto Attendant whose Action is set to "Avd - Data Directed Routing, with **Application** set to the virtual extension you use to start CallRouter. For further information on configuring Auto Attendants, refer to the *AltiWare OE System Installation and Administration Manual* and the *AltiAPI Programmer Guide*.

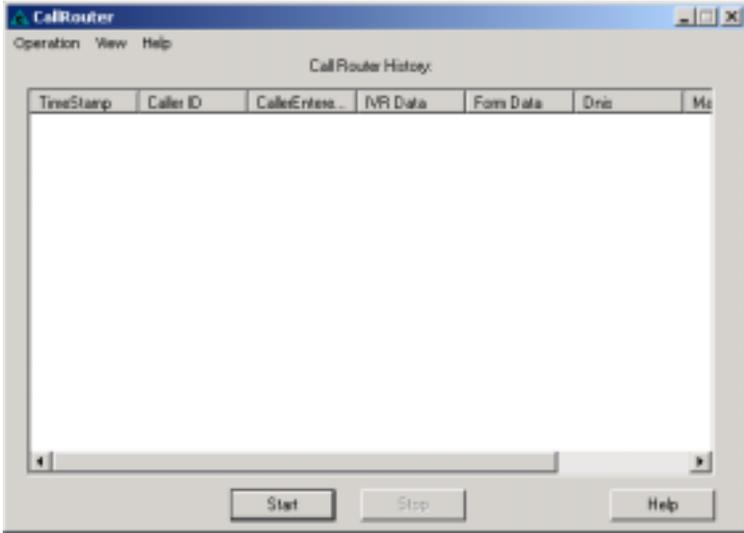
To Install Basic CallRouter:

Run CallRouter, select the Basic CallRouter and click **Next**. Setup will confirm the destination for the CallRouter application (default is C:\Program Files\AltiGen\Call Router). Click **Next** to proceed. To select a different location, use the **Browse** button to choose the new destination.

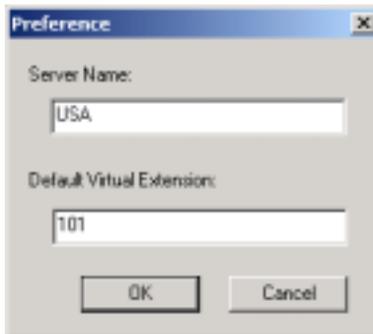
Note: **Advanced CallRouter** Service requires the purchase and activation of the Advance CallRouter license.

To Configure/Run Basic CallRouter:

1. Launch CallRouter from Start>Programs.



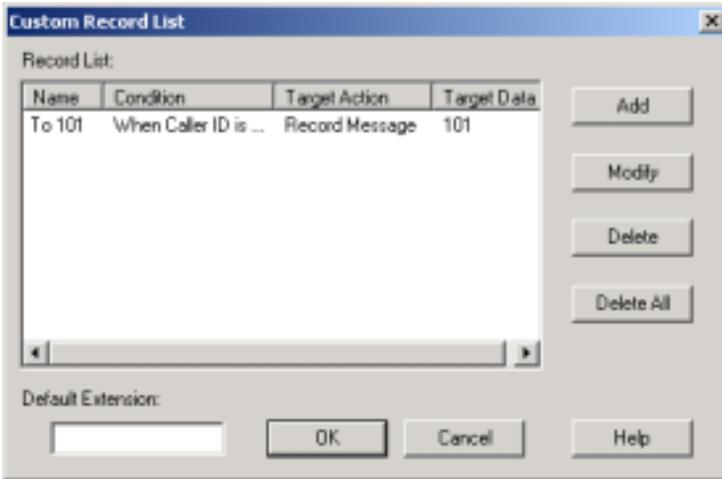
2. Select **Operation>Preference**.



3. In the **Preference** window, enter the **Server Name** and **Default Virtual Extension** that CallRouter will connect to, then click **OK**.
4. Click **Start** to run Basic CallRouter. Then, enter the default virtual extension password. When Basic CallRouter is stopped, you can create customer records and configure the server and login information.

Basic CallRouter Customer Records

To create customer records that will be used to route calls, select **Operation>Customer Record** to open the **Custom Record List** window. This window also allows you to view existing customer records, and modify/delete customer records.



- **Add** - opens a Custom Record dialog box, where you can create a new record and build the conditions for the record.
- **Modify** - opens the Customer Record dialog box to modify the record selected in the Record List.
- **Delete** - deletes the record selected in the Record List.
- **Delete All** - deletes all records in the Record List.
- The **Default Extension** field allows you to specify an extension that CallRouter will send a call to, if no match is found in the records or in the database.

Creating Customer Records

To create a customer record:

1. Select **Customer Record** from the **Operation** menu. (If **Customer Record** field is grayed out, stop CallRouter.)
2. Click the **Add** button to open a new customer record or **Modify** to modify an existing record in the **Record List** window.

1. Build the Conditions for your custom record:

If request message contains: Match one of these items: ▼

Items	Data
<input type="checkbox"/> Caller ID	
<input type="checkbox"/> Caller Entered...	
<input type="checkbox"/> TWR Data	
<input type="checkbox"/> Form Data	

Select a DNIS number: _____

2. Target action of the custom record:

No Action ▼

User Data: _____

Push URL: _____

Prompt: _____

Name of the custom record: _____

OK Cancel Help

3. Select the data to match against customer records.
 - **If the request message contains** - lets you select Call Router Request data to match against the customer record.
 - a) Select “**Match one**” or “**Match all**” from the dropdown list.
 - b) Select the items you want.
 - c) Click in the **Data** column and type to specify the data.

Note: Caller Entered Digits must be numeric only.
 - **Select a DNIS number** - lets you enter a callee number to check against customer records.

4. Select a **Target action** for CallRouter to perform when Call Router Request data matches this record.

Target action options: Goto Top Level, Goto Menu Item, Repeat Current Level, Call to Extension/Workgroup, Call to Operator, Dial by Name, Collect Extension, Directory Service, Record Message (specify target data in accompanying text box), Mailbox Access, Disconnect, System Callback, Collect Digits (specify fields in accompanying Collect Digit dialog box, see note below), Other DDR Application (specify target data in accompanying text box).

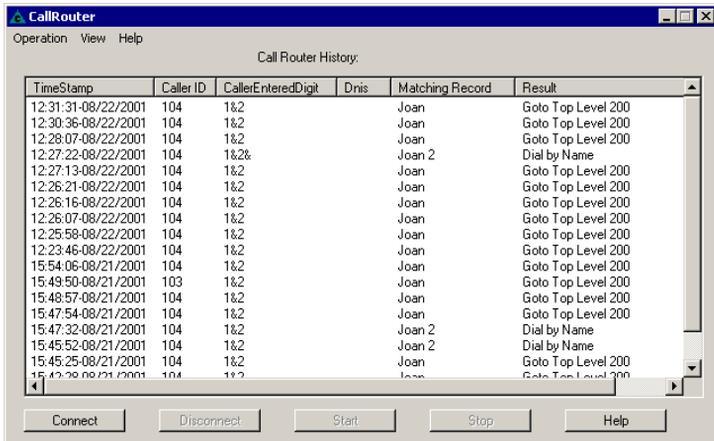
Note: Collect Digit Dialog Box

- **Tag name** - for example, “password” (gathered from a response to an Auto Attendant prompt or another AltLink Plus application)
- **Minimum Digits** and **Maximum Digits** to collect
- **PSTN** and **Web Timeout** values
- **IVR Data** - for example, “username=Michael” (gathered from a response to an Auto Attendant prompt or another AltLink Plus application)

5. *(future release)* Enter optional data to match against customer record:
 - User Data (gathered from a response to an Auto Attendant prompt or another AltLink Plus application)
 - Push URL (AltWeb only)
 - the number of prompt to play to the callee
6. Enter a name for this record.
7. Click **OK**.

Viewing CallRouter History

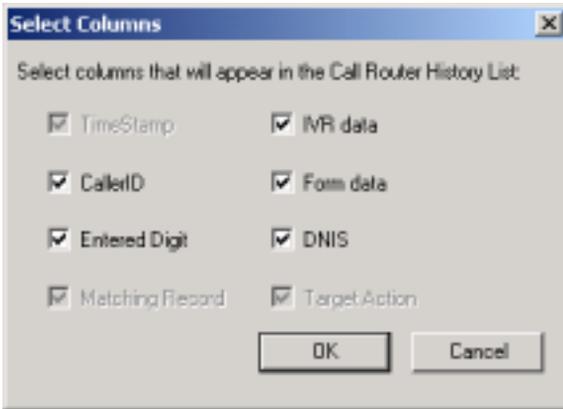
The Basic CallRouter window gives a history of all incoming trunk calls to Basic CallRouter.



To specify CallRouter History window content:

1. Choose **Select Column** from the **View** Menu.
2. In the **Select Columns** dialog box, select the following columns to display in the CallRouter history window:
 - CallerID
 - Entered Digit
 - IVR Data
 - Form Data

- DNIS



Call Route Request Data

The “Call Router Request” message sent by Altiserv to CallRouter contains data about the incoming call, which CallRouter attempts to match against your routing rules. Call Route Request data consists of Caller ID, (Caller) Entered Digits, IVR data, Form data and DNIS, all collected via real-time monitoring.

TimeStamp	Caller ID	CallerEnteredDigit	Dnis	Matching Record	Result
12:31:31-08/22/2001	104	1&2		loan	Goto Top Level 200
12:31:31-08/22/2001	104	1&2		loan	Goto Top Level 200
12:31:31-08/22/2001	104	1&2		loan	Goto Top Level 200

Note: Caller Entered Digits shows the Auto Attendant assignment for the workgroup that receives the call. If the workgroup’s AA assignment is 5, this item shows “0 & 5”; if the AA assignment is 3, the item shows “0 & 3,” and so on. The “0” indicates transfer to an Auto Attendant.

Call Route Response Data

The “Call Route Response” message, sent from CallRouter to Altiserv, contains the search results of the Call Route Request Message. In the CallRouter History window, this data shows how CallRouter handled each call. Call Route Response data includes Matching Record (routing rule CallRouter referred to for call routing) and Result (how and where the call was routed), all collected via real-time monitoring.



TimeStamp	Caller ID	CallerEnteredDigit	Dris	Matching Record	Result
12:31:31-08/22/2001	104	1&2		Joan	Goto Top Level 200
12:30:36-08/22/2001	104	1&2		Joan	Goto Top Level 200

Note: If no match is found between the Call Route Request Data and the routing rules, the call is routed according to the business rules that check monitored workgroups for the longest available agent, maximum service level, and minimum expected delay.

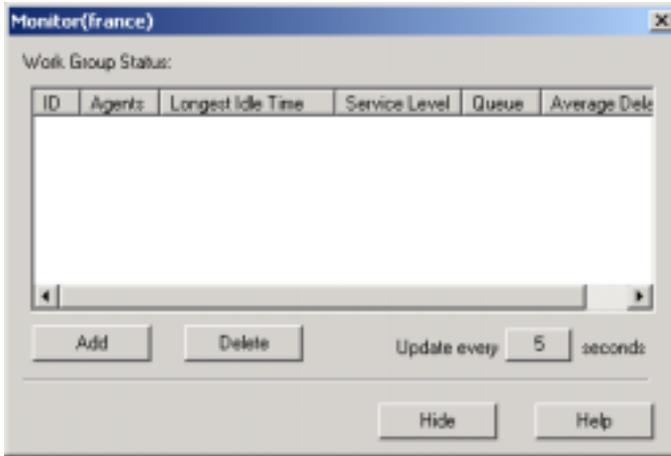
Clearing Basic CallRouter History Data

To clear data from the CallRouter History window:

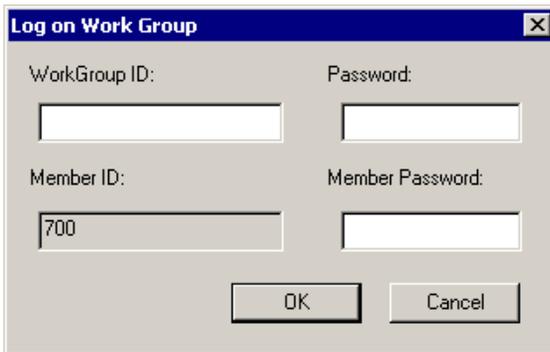
1. In the directory where CallRouter.exe resides, locate the CallRouter.csv file.
2. Open CallRouter.csv and delete all contents.
3. Save and close CallRouter.csv.

Show Monitor

To view real-time data on incoming trunks to workgroups, select **Show Monitor** from the **View** menu. (If the option is grayed out, stop CallRouter.)



- The main window box displays the following workgroup fields: **ID**, **Agents**, **Longest Idle Time**, **Service Level**, **Queue** and **Average Delay**.
- **Add** button - Click **Add** to log on to a workgroup whose incoming trunk call data you want to monitor. This opens a Log on Work Group dialog box.



Enter the workgroup extension as the **WorkGroup ID** and **Password**, and enter the virtual extension's **password**. (By default, the **Extension ID** field is grayed out.)

- **Delete** button - click **Delete** to remove the selected workgroup from the display.

Note: The workgroup to which incoming trunk calls will be routed via CallRouter must be assigned to the Auto Attendant whose **Action** is set to “Avd - Data Directed Routing,” with **Application** set to the virtual extension you use to start CallRouter. For further information on configuring Auto Attendants, refer to the *AltiWare OE System Installation and Administration Manual* and the *AltiAPI Programmer Guide*.

To log on to multiple workgroups:

- Click **Add** again and enter the next Workgroup ID and Password and Virtual Extension password.

Advanced CallRouter

Advanced CallRouter is the standard CallRouter application plus call router service. Advanced CallRouter requires the purchase and activation of an Advanced CallRouter license.

Note: The workgroup to which incoming trunk calls will be routed via CallRouter must be assigned to the Auto Attendant whose Action is set to “Avd - Data Directed Routing, with **Application** set to the virtual extension you use to start CallRouter. For further information on configuring Auto Attendants, refer to the *AltiWare OE System Installation and Administration Manual* and the *AltiAPI Programmer Guide*.

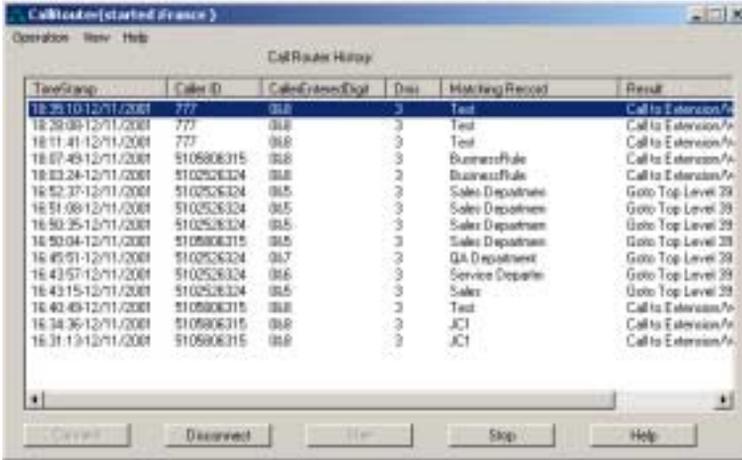
To Install Advanced CallRouter:

Run CallRouter, select the Advanced CallRouter and click **Next**. When prompted, enter the 20 digit license key for Advanced CallRouter in the field and click **Next**. Setup will confirm the destination for the CallRouter application (default is C:\Program Files\AltiGen\Call Router). Click **Next** to proceed. To select a different location, use the **Browse** button to choose the new destination.

Note: **Advanced CallRouter** Service requires the purchase and activation of the Advance CallRouter license.

To Configure/Run Advanced CallRouter:

1. Launch CallRouter from Start>Programs.

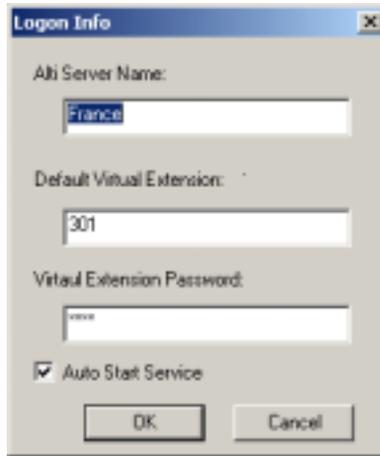


2. Click the **Connect** button to enter the CallRouter Server Name or IP address to connect to, then click **OK**.

To disconnect from this server, click the **Disconnect** button.



3. Select **Operation>Logon Info**.



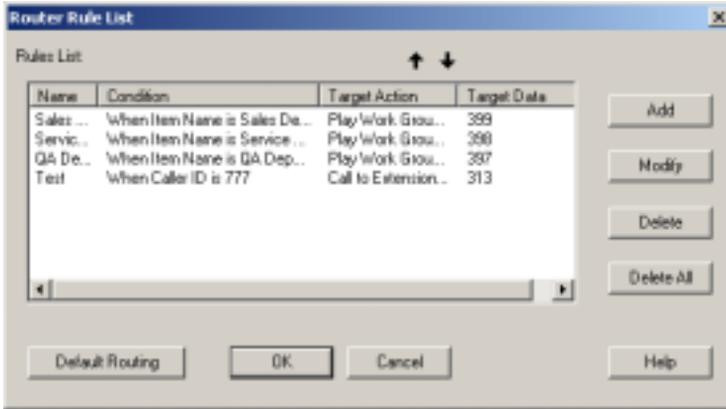
4. In the **Logon Info** window, enter the **Server Name** and **Default Virtual Extension** and **Password**, that Advanced CallRouter will connect to, then click **OK**.

(Optional) Check **Auto Start Service** to have CallRouter start routing calls automatically, after the system restarts or after CallRouter service has been stopped and restarted.

5. Click **Start** to run Advanced CallRouter. When Advanced CallRouter is stopped, you can configure the server and login information.
6. Route Rules and Show Monitor can be configured while Advanced CallRouter is started.

Advanced CallRouter Route Rules

To create route rules that will be used to route calls, select **Operation>Route Rule** to open the **Route Rule List** window. This window also allows you to view existing route rules, and modify/delete route rules.



- **Add** - opens a Custom Record dialog box, where you can create a new record and build the conditions for the record.
- **Modify** - opens the Customer Record dialog box to modify the record selected in the Record List.
- **Delete** - deletes the record selected in the Record List.
- **Delete All** - deletes all records in the Record List.
- The **Default Routing** button opens a **Default Routing Rule** dialog box, where you can specify the action for CallRouter to take if no match is found in the rules or in the database.



Default Routing Action options: No Action, Goto Top Level, Goto Menu Item, Repeat Current Level, Call to Extension/Workgroup,

Call to Operator, Dial by Name, Collect Extension, Directory Service, Record Message (specify target data in accompanying text box), Mailbox Access, Disconnect, System Callback, Collect Digits (specify fields in accompanying Collect Digit dialog box), Other DDR Application (specify target data in accompanying text box), Play WG Queue Status (specify target data in accompanying text box).

Creating Route Rules

To create a route rule:

1. Select **Route Rule** from the **Operation** menu.
2. Click the **Add** button to open a new Route Rule or **Modify** to modify an existing rule in the **Rules List** window.

Rule

Rule Name:
Sales Department

1. Build the Conditions for your rule:
If Caller Info contains: Match one of these items

Item	Data	OrSN
<input type="checkbox"/> Caller ID		
<input type="checkbox"/> CallerEnteredDigit		
<input type="checkbox"/> IVR Data		
<input checked="" type="checkbox"/> NonNone	Sales Department	
<input type="checkbox"/> Dnis		

2. Target action of the Rule:
Play WG Queue Status: 399

Warning: To make the rule work, you must make sure that you add this workgroup to Call Router's monitor list.

Use Data: _____
Play DTMF: _____
Play Tone: _____

OK Cancel Help

3. Enter or modify the **Rule Name** in this field.
4. Select the data to match against routing rules.

- **If Callee Info contains** - lets you select Call Route Request data to match against the customer record.
 - a) Select “**Match one**” or “**Match all**” from the dropdown list.
 - b) Select the items you want.
 - c) Click in the **Data** column and type to specify the data.

To manually specify data for an item, right-click the item, select **Input data** and enter information in the column.

Notes:

- Caller Entered Digits must be numeric only.
- You can enter “*” as a wildcard character for any length of digits, or “?” for a single digit.

For example, if you specify Call ID Data “510252,” this will match all Caller IDs 510-252-xxxx. If you specify Call ID Data “510252????,” this will match all Caller IDs 510 252-xxxx.

To specify data from an existing database, right-click the item, select **From user database**, and enter information in the **DataSource** dialog box.

5. Select a **Target action** for CallRouter to perform when Call Route Request data matches this record.

Target action options: No Action, Goto Top Level, Goto Menu Item, Repeat Current Level, Call to Extension/Workgroup, Call to Operator, Dial by Name, Collect Extension, Directory Service, Record Message (specify target data in accompanying text box), Mailbox Access, Disconnect, System Callback, Collect Digits (specify fields in accompanying Collect Digit dialog box, **see Note below**), Other DDR Application (specify target data in accompanying text box), Play WG Queue Status (specify target data in accompanying text box, **see Note below**).

Note: Collect Digit Dialog Box

- **Tag name** - for example, “password” (gathered from a response to an Auto Attendant prompt or another AltLink Plus application)
- **Minimum Digits** and **Maximum Digits** to collect
- **PSTN** and **Web Timeout** values
- **IVR Data** - for example, “username=Michael” (gathered from a response to an Auto Attendant prompt or another AltLink Plus application)

Note: **Play WG Queue Status** - if you select “Play WG Queue Status,” Advanced CallRouter must log on as a workgroup extension with password and CallRouter’s virtual extension and password. Specify this workgroup extension in the textbox that appears when you select **Play WG Queue Status**. (See “Queue Announcements” on page 402.)

If you want to apply the “**Play WG Queue Status**” Target action to several different workgroups, you must create separate rules for each.

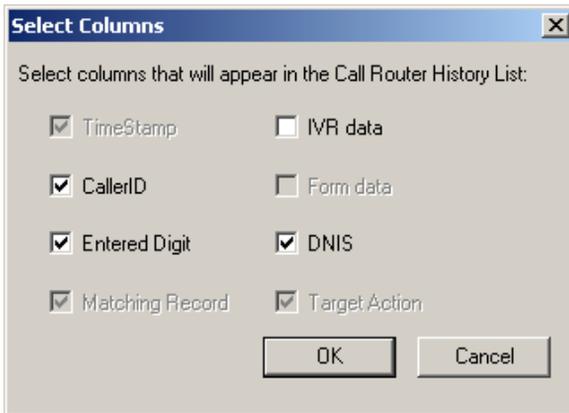
6. *(future release)* Enter optional data to match against the routing rule:
 - User Data (gathered from a response to an Auto Attendant prompt or another AltLink Plus application)
 - Push URL (AltWeb only)
 - the number of prompt to play to the callee
7. Click **OK**.

Viewing CallRouter History Menu

The Advanced CallRouter window gives a history of all incoming trunk calls to Advanced CallRouter.

To specify CallRouter History window content:

1. Choose **Select Column** from the **View Menu**.
2. In the **Select Columns** dialog box, select the columns to display in the CallRouter history window the following:
 - Caller ID
 - Entered Digit
 - IVR data
 - DNIS



Call Route Request Data

The “Call Router Request” message sent by AltiServ to CallRouter contains data about the incoming call, which CallRouter attempts to match against your routing rules. Call Route Request data consists of Caller ID, (Caller) Entered Digits, IVR data and DNIS, all collected via real-time monitoring.

TimeStamp	Caller ID	CallerEnteredDigit	Dnis	Matching Record	Result
12:31:31-08/22/2001	104	1&2		Joan	Goto Top Level 200
12:30:36-08/22/2001	104	1&2		Joan	Goto Top Level 200
12:30:27-08/22/2001	104	1&2		Joan	Goto Top Level 200

Note: Caller Entered Digits shows the Auto Attendant assignment for the workgroup that receives the call. If the workgroup’s AA assignment is 5, this item shows “0 & 5”; if the AA assignment is 3, the item shows “0 & 3,” and so on. The “0” indicates transfer to an Auto Attendant.

Call Route Response Data

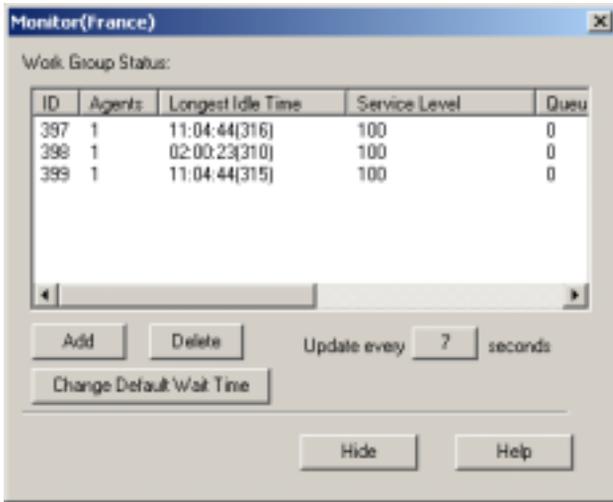
The “Call Route Response” message, sent from CallRouter to AltiServ, contains the search results of the Call Route Request Message. In the CallRouter History window, this data shows how CallRouter handled each call. Call Route Response data includes Matching Record (routing rule CallRouter referred to for call routing) and Result (how and where the call was routed), all collected via real-time monitoring.

TimeStamp	Caller ID	CallerEnteredDigit	Dnis	Matching Record	Result
12:31:31-08/22/2001	104	1&2		Joan	Goto Top Level 200
12:30:36-08/22/2001	104	1&2		Joan	Goto Top Level 200
12:30:27-08/22/2001	104	1&2		Joan	Goto Top Level 200

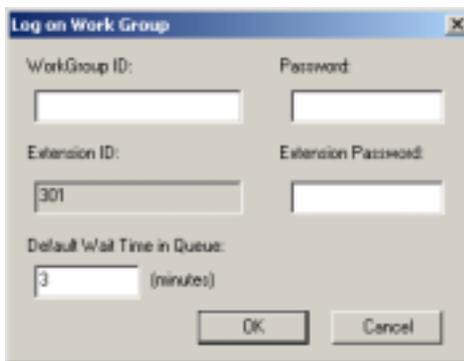
Note: If no match is found between the Call Route Request Data and the routing rules, the call is routed according to the business rules that check monitored workgroups for the longest available agent, maximum service level, and minimum expected delay.

Show Workgroup Status

To view real-time data on incoming trunks to workgroup, select **Show Workgroup Status** from the **View** menu.



- The main window box displays the following workgroup fields: **ID**, **Agents**, **Longest Idle Time**, **Service Level**, **Queue**, **Average Delay** and **Default Wait Time**.
- **Add** button - Click **Add** to log on to a workgroup whose incoming trunk call data you want to monitor. This opens a Log on Work Group dialog box.



Enter the workgroup extension as the **WorkGroup ID** and **password**, and enter the virtual extension's **password**. In the field for **Default**

Wait Time in Queue, type in the desired minutes. (By default, the **Extension ID** field is grayed out.)

- **Delete** button - click **Delete** to remove the selected workgroup from the display.
- **Change Default Wait Time** (in Advanced CallRouter only) - click this button to change the default wait time associated with the workgroup queue.

Note: The workgroup to which incoming trunk calls will be routed via CallRouter must be assigned to the Auto Attendant whose **Action** is set to “Avd - Data Directed Routing,” with **Application** set to the virtual extension you use to start CallRouter. For further information on configuring Auto Attendants, refer to the *AltiWare OE System Installation and Administration Manual* and the *AltiAPI Programmer Guide*.

If you want to announce queue status to callers (**Target action** of any routing rule is “Play WG Queue Status,”) complete the **Virtual Extension ID** and **Virtual Extension** password fields using the workgroup agent extension (and its password) specified in the rule.

To log on to multiple workgroups:

Click **Add** again and enter the next Workgroup ID and Password.

Clearing Advanced CallRouter History Data

To clear data from the CallRouter History window:

1. In the directory where CallRouter.exe resides, locate the CallRouter.csv file.
2. Open CallRouter.csv and delete all contents.
3. Save and close CallRouter.csv.

Additional Advanced CallRouter Features

Building SQL Queries

To build an SQL query that CallRouter will send to your database, use the **Datasource** dialog box. The customer information retrieved from your database will be used in the routing rule.

To open the Datasource dialog box, right-click on a data **Item** you want to specify using information from an existing database. Select **From user database**:

To build and SQL query:

1. Enter User Name and Password information for the database.
2. Enter information for the database you are querying against. For example:

DSN - BankAccount

Table Name - AccountBalance

Matched Field Name - CustomerPhoneNumber

Matched Field Data Type - char

Note: as you build the query, the **SQL query sentence** will appear in the window at the bottom.

3. Specify the condition for this query.
 - a. Select the **Caller Match Item** data for this query - **Caller ID**, **CallerEnteredDigits**, **Dnis**, **Item name** or **IVR data**.
 - b. Add any additional condition. For example Where - && Balance>1000
4. Click **OK**. You will be returned to the **Rule** dialog box, where the SQL query will be shown in the **Data** column and the database will be shown in the **DSN** column.

Queue Announcements

You can use Advanced CallRouter to inform callers of their position in a workgroup queue. There are two requirements:

1. In CallRouter, you must create a rule with Target action “Play WG Queue Status.” In addition, enter an Item Name that matches the name of the Auto Attendant’s “Data Directed Routing” name. The workgroup extension information you specify in the rule must also be entered when CallRouter logs on in the Monitor window. Thus, it is a **requirement** to use the same virtual agent extension if you are writing several different queue announcement rules.
2. In AltiAdmin, you must configure one of the Auto Attendant numbers to which Call Router is assigned to “Data Directed Routing.” 1) Enter the same “Item Name” you use in the rule discussed immediately above. 2) Replace the “No Action” level with “Call – to Ext./ Workgroup,” and enter the workgroup extension number. For further information on configuring Auto Attendants, see the *AltiWare OE System Installation and Administration Manual* and the *AltiAPI Programmer Guide*.

If your organization has multiple workgroups and you want queue announcement for several or all of them, you must create separate rules for each, with workgroup extension information pertinent to each workgroup.

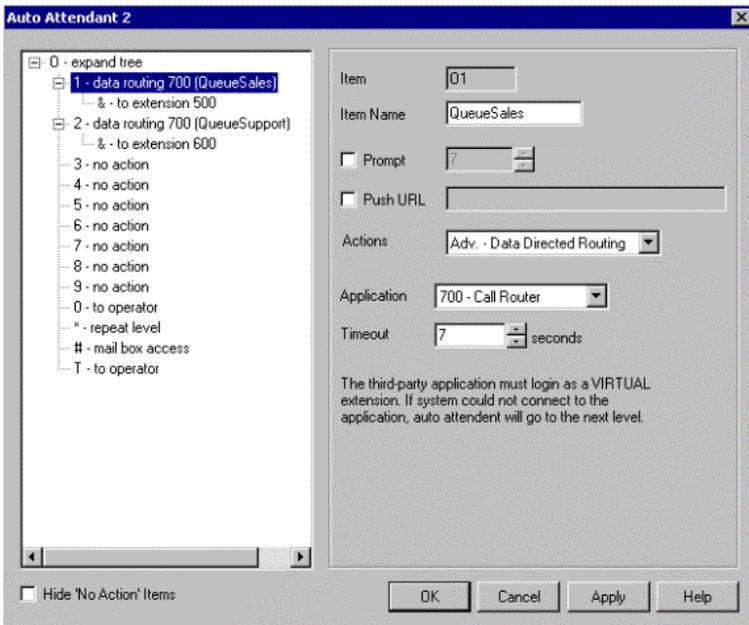
Example:

You use virtual extension 700 to log in to Call Router. You have two workgroups, Sales and Support, with the following agent and workgroup extensions:

	Sales	Support
Workgroup extension number	500	600
Call Router virtual extension number	700	700

For both workgroups, you want CallRouter to check incoming calls for Caller ID and Caller Entered Digits, and to play the WG queue status if a match is found and all agents are busy.

In AltAdmin, you configure the Auto Attendant to which Call Router is assigned as shown below. (The example uses Auto Attendant 2.) Note that you must enter a different Item Name for each level.



For Sales, you create a rule as shown below.

Rule

Rule Name: Queue Announcement Sales

1. Build the Conditions for your rule:

If Caller Info contains: Match one of these items

Item	Data	DSN
<input type="checkbox"/> Caller ID		
<input type="checkbox"/> CallerEnteredDigit		
<input type="checkbox"/> IVR Data		
<input type="checkbox"/> Form Data		
<input checked="" type="checkbox"/> ItemName	QueueSales	
<input type="checkbox"/> Dnis		

2. Target action of the Rule:

Play WG Queue Status 500

User Data:

Push URL:

Prompt:

OK Cancel Help

Similarly, for Support, you create a rule as shown below.

Rule [X]

Rule Name:

1. Build the Conditions for your rule:

If Caller Info contains:

Item	Data	DSN
<input type="checkbox"/> Caller ID		
<input type="checkbox"/> CallerEnteredDigit		
<input type="checkbox"/> IVR Data		
<input type="checkbox"/> Form Data		
<input checked="" type="checkbox"/> ItemName	QueueSupport	
<input type="checkbox"/> Dnis		

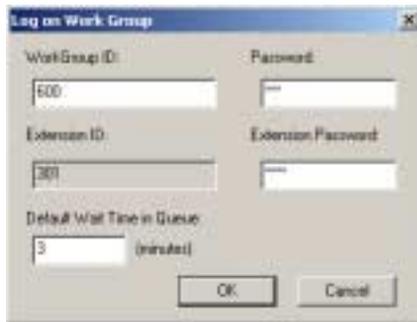
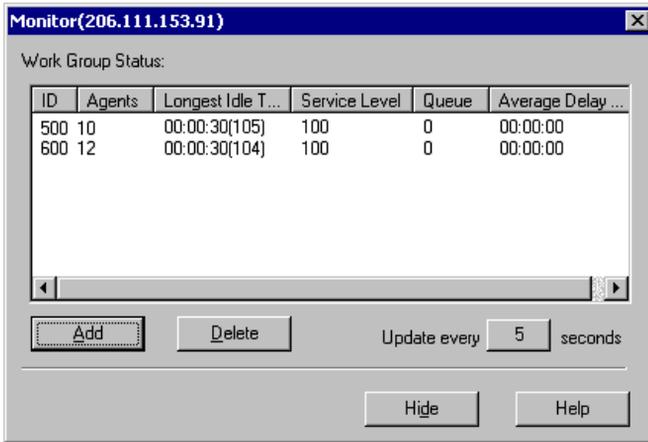
2. Target action of the Rule:

User Data:

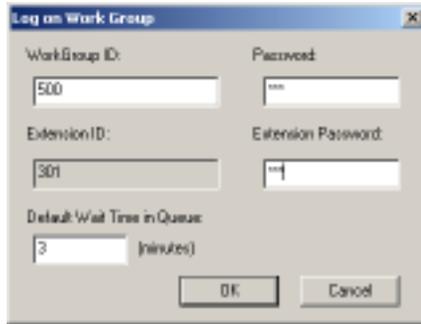
Push URL:

Prompt:

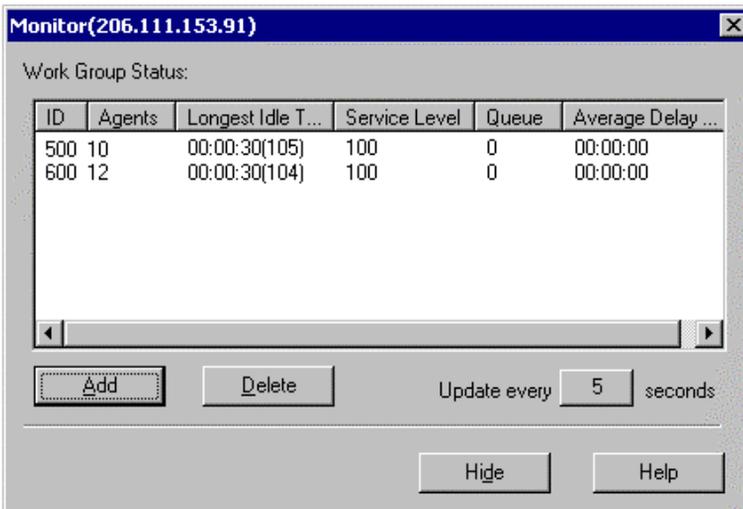
In the Monitor window, click Add to log on to Sales, entering both the workgroup extension & password and the virtual extension & password you specified in the “Auto Attendant Sales Queue Announcement” rule:



In the Monitor window, click Add to log on to Support, entering both the workgroup extension & password and the virtual extension & password you specified in the “Auto Attendant Sales Queue Announcement” rule:



The Monitor window shows that Call Router is logged on to both workgroups. Calls to each workgroup will be checked against the rules and will trigger queue announcement if a match is found and all agents are busy.



Call Accounting Report Formats

This appendix identifies the field codes for AltiGen's **CDR (Call Detail Reporting)** records and the formats for the **Station Message Detail Reporting (SMDR)** specification support by AltiGen.

The first tables describe CDR and RTM database elements, while the remainder of the section describes the SMDR format.

CDR Data Schema

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
NodeID	Server ID (System ID) assigned to an Altiserv system in AltiservAdmin	ULONG	value: 1–100
SessionID	Session ID: a unique number, usually 9 digits or larger, assigned by Altiserv to a call	ULONG	
InternalCall	Internal or external call	UBYTE	0=External 1=Internal
Direction	Direction of the call (incoming or outgoing)	UBYTE	0=None (logon/off) 1=Incoming 2=Outgoing (includes silent monitor, barge-in)
StartTime	<i>Outgoing</i> call: Time when caller receives ringback, busy, or connect signal <i>Incoming</i> call: Time when AA picks up	ULONG	
EndTime	Timestamp when call is disconnected	ULONG	

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
CallerType	Type of line for an incoming call	UBYTE	0=Unknown 1=Ext analog 2=Ext IP 3=Ext PHS (not used) 4=Ext virtual 5=Ext WG 11=trk analog 12=trk T1 13=trk IP 14=trk PRI 15=trk PHS (not used)
CallerPad	Line's physical address for an incoming call	UCHAR (5)	E.g. "0004", where "00"=slot, "04"=channel Always "-1-1" for WG or virtual extension
CallerNum	Caller phone number of an incoming call (extension number or off-net PSTN)	UCHAR (41)	
CallerName	Caller name for an incoming call (provided by CO for trunk calls; as entered in AltAdmin for extension calls)	UCHAR (65)	

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
TargetType	Type of line for an outgoing call	UBYTE	0=None 1=Ext analog 2=Ext IP 3=Ext PHS (not used) 4=Ext virtual 5=Ext WG 11=trk analog 12=trk T1 13=trk IP 14=trk PRI 15=trk PHS (not used)
TargetPad	Physical address of line for an outgoing call	UCHAR (5)	E.g. "0004," where "00"=slot and "04"=channel
TargetNum	Target phone number of an outgoing call (extension number or off-net PSTN)	UCHAR (41)	
TargetName	Target name for an outgoing call (as entered in AltAdmin for extension calls)	UCHAR (65)	
WGNum	Workgroup number for an incoming call	UCHAR (8)	
OutGoingWG	Workgroup number for an outgoing call, as set in AltAdmin or by agent at logon	UCHAR (8)	
DNIS	DNIS number for incoming call	UCHAR (33)	

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
Tenant	Tenant name for trunk	UCHAR (31)	
AccountCode	Account code	UCHAR (11)	1—10 digits in length
AADuration	Duration in seconds an incoming call is connected to the Auto Attendant; multiple connections to AA in a single session produces multiple records	ULONG	
WaitDuration	Duration in seconds a call is ringing and in workgroup queue	ULONG	
VMDuration	Duration in seconds after a call goes into a voicemail box; includes greeting, false attempts at messages, successful message, and review of message	ULONG	
VMRecordDuration	Duration in seconds of recording time for a VM message that was completed	ULONG	
HoldDuration	Duration in seconds while a call is on hold	ULONG	
TalkDuration	Duration in seconds of talk time	ULONG	
RecordDuration	Duration in seconds of NOVO recording	ULONG	

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
ExitState	State when call is terminated	ULONG	0x0001=AA 0x0002=RNA 0x0003=Queue 0x0004=VM no rec 0x0005=VM record 0x0006=Connect 0x0007=Logon 0x0008=Logoff 0x0009=All Trunks Busy 0x000A=No session 0x000B=VM Access [user checks VM] 0x000C=Forward 0x000D=Transfer 0x000E=VM Notify [VM tells how many messages in VM box]

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
ExitState (cont)			0x000F=WG Abandoned 0x0010=Park 0x0011=System Park 0x0012=Conference 0x0013=Call Monitor 0x0014=Transfer Cancel 0x0015=Call Redirect 0x0016=Pick Up By [another agent, from WG queue] 0x0017=Dial Cancel [User goes offhook, starts to dial, and hangs up before ring]
LogoffReason	Logoff reason code	UBYTE	
URL	URL when "call" is initiated by AltWeb user clicking the make-call button	UCHAR (255)	
User Data	Agent input	UCHAR (255)	

RTM Data Schema

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
Workgroup Data			
BeforeAnswerDuration	Time calls waited in queue before being answered	ULONG	* Wait Time for Answered Calls
Date	Day information	ULONG	mm/dd/yy * Time
DurationInQ	Time calls waited in queue before being abandoned or answered	ULONG	
DurationInQOfCallAband	Total wait time of all calls abandoned in queue (NumCallAbandonedInQ)	ULONG	* Wait Time for Abandoned Calls
InCallDuration	Duration of incoming calls (NumInCall), starting from the time an agent answers a call until the call is disconnected or transferred out of the WG	ULONG	* Calls Answered Duration

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
MaxWaitTimeInQ	Longest waiting time in queue during searched time interval	short	
NumCallAbandonedDuringRing	Count of calls abandoned while ringing an agent	short	A * Calls Abandoned During Ring
NumCallAbandonedInQ	Count of calls abandoned while waiting in queue	short	B * Calls Abandoned in Queue
NumCallAbandonedBeforeAnswer	Total abandoned calls (during VM, queue, and RNA)	short	C
			C-A-B= * Calls Abandoned during VM
NumCallToVM	Count of voicemail messages (calls transferred to VM from queue by caller pressing #, and calls automatically transferred to WG VM after RNA for every agent)	short	* Calls Transferred to Voice Mail

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumInCall	Calls answered by an agent; if a call is forwarded to and answered by multiple agents, the count is incremented	short	* Calls Answered
NumOutCall	All outgoing trunk and station-to-station calls that entered "Connected" state	short	* Outgoing Calls
NumQueueOverflow	Calls routed to the WG but not queued due to AltAdmin settings that specify acceptable queue length and/or wait time	short	* Queue Overflow
OutCallDuration	Duration of outgoing calls (NumOutCall); from the time the call enters "Connected" state until disconnect	ULONG	* Outgoing Calls Duration
PeakQLength	Maximum queue length since midnight	short	
PeakWaitTimeInQ	Maximum queued time since midnight	ULONG	

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
QLength	Number of calls routed into the queue; if a call is recycled into the queue after RNA, the count is incremented	short	* Calls in Queue
Time	Time interval	short	hh:mm * Period
WGNum	Workgroup number	UCHAR (8)	
Agent Data			
AgentNum	Agent extension number	UCHAR (8)	
Date	Day information	ULONG	mm/dd/yy * Time
InCallDuration	Duration of incoming calls (NumInCall), starting from the time the agent answers a call until the call is disconnected or transferred out of the WG	ULONG	* Calls Answered Duration
NumCallToVM	Count of voicemail messages	short	* Voice Mail

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumInCall	Calls answered; if a call is rerouted to and answered by the same agent, the count is incremented	short	* Calls Answered
NumOutCall	All outgoing trunk and station-to-station calls that entered "Connected" state	short	* Outgoing Calls
NumWrapUp	Number of times agent entered Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	short	* Wrapup
OutCallDuration	Duration of outgoing calls (NumOutCall); from the time the call enters "Connected" state until disconnect	ULONG	* Outgoing Calls Duration
Time	Time interval	short	hh:mm * Period
VMDuration	Total duration of voicemail messages	ULONG	* Voice Mail Duration

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
WrapUpDuration	The amount of time for Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	ULONG	* Wrapup Duration
Agent Per Workgroup			
AgentNum	Agent extension number	UCHAR (8)	
Date	Day information	ULONG	mm/dd/yy * Time
InCallDuration	Duration of incoming calls (NumInCall), starting from the time the agent answers a call until the call is disconnected or transferred out of the WG	ULONG	* Calls Answered Duration
Login	Log state	UBYTE	0=Logout 1=Login
LogTimeStamp	Login/logout time stamp	ULONG	
NumCallToVM	Count of voicemail messages	short	* Voice Mail

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumInCall	Calls answered; if a call is rerouted to and answered by the same agent, the count is incremented	short	* Calls Answered
NumOutCall	All outgoing trunk and station-to-station calls that entered "Connected" state	short	* Outgoing Calls
NumWrapUp	Number of times agent entered Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	short	* Wrapup
OutCallDuration	Duration of outgoing calls (NumOutCall); from the time the call enters "Connected" state until disconnect	ULONG	* Outgoing Calls Duration
ReasonCode	Logout reason code	UBYTE	
Time	Time interval	short	hh:mm * Period
VMDuration	Total duration of voicemail messages	ULONG	* Voice Mail Duration

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
WGNum	Workgroup number	UCHAR (8)	
WrapUpDuration	The amount of time for Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	ULONG	* Wrapup Duration

SMDR Reporting Format

Besides the CDR format, AltiServ reports telephone information in the **Station Message Detail Reporting (SMDR) format** to an application through the COM port. The SMDR format and sample entries for the specification are described below.

In AltiWare's reports, internal extension-to-extension calls are not logged; neither are outbound calls of less than 15 seconds duration.

Trunk Calls In Format:

09/01 07:04P 00:00:25 0200 5102526354 109 12345678:

(Start, Length)	Field	Format	Notes
(0, 1)	space		
(1, 5)	date	mm/dd	
(6, 1)	space		
(7, 6)	start time	hh:mmP	P = pm, A = am
(13, 1)	space		
(14, 8)	duration	hh:mm:ss	
(22, 1)	space		

SMDR Reporting Format

(Start, Length)	Field	Format	Notes
(23, 4)	trunk PAD number	xxyy	x = board numb. y = channel numb.
(27, 34)	calling party		
(61, 4)	called party		
(65, 7)	space		
(72, 8)	account code		1 to 10 digits
(80, 1)	delimiter	line feed	

Extension Calls Out Format:

09/01 08:12P 00:00:33 109 2526352 0411 12345678:

(Start, Length)	Field	Format	Notes
(0, 1)	space		
(1, 5)	date	mm/dd	
(6, 1)	space		
(7, 6)	start time	hh:mmP	P = pm, A = am
(13, 1)	space		
(14, 8)	duration	hh:mm:ss	
(22, 1)	space		
(23, 4)	calling party		
(27, 6)	space		
(33, 26)	called number		
(59, 2)	space		
(61, 4)	trunk PAD number	xxyy	x = board numb. y = channel numb.

(Start, Length)	Field	Format	Notes
(72, 8)	account code		1 to 10 digits
(80, 1)	delimiter	line feed	

From Extension A

Extension A: 100

Extension B: 111

Outside #: 3210002:

Calls Initiated by Extension A (Column A)			
1	Dial out	11/18 05:53P 00:00:28 100 0100	3210002
2	Ext B fwd to Trk Y	11/18 05:55P 00:00:21 100 0001	3210002
3	Ext B ONA to Trk Y	11/18 05:57P 00:00:17 100 0100	3210002
4	VM make call to Trk Y	1/18 05:58P 00:00:15 100 0001	3210002
5	### to Ext B (WG B, Virtual B) and VM make call	11/18 05:59P 00:00:23 111 0100	3210002
6	Ext B S-transfer to Trk Y* (see examples)	11/18 06:00P 00:00:22 111 0001	3210002
7	Ext B B-transfer to Trk Y* (see examples)	11/18 06:01P 00:00:18 100 0100 11/18 06:01P 00:00:05 0001100 100	3210002
8	To Trk Y then transfer to Ext B	11/18 06:02P 00:00:27 100 0001	3210002
9	Outcall	Log time only, no lines logged	
10	Zoomerang	11/18 06:06P 00:00:27 100 0100	3210002

SMDR Reporting Format

Calls Initiated by Extension A (Column A)			
11	System Speed Dial	11/18 06:07P 00:00:18 100 0001	3210002
12	Ext Speed Dial	11/18 06:08P 00:00:25 100 0100	3210002
13	#35 privilege over- write to Ext B (WG B, virtual B)	11/18 06:09P 00:00:31 100 0001	3210002
14	B is WG B	N/A	
15	Ext B transfer to WG C	N/A	
16	Conference with Trunk	11/18 06:10P 00:00:25 100 0100	3210002

From Trunk B

Extension B: 100
Trunk X: 3210001
Trunk Y: 3210002:

Calls Initiated by Trunk X to Extension B (Column B)			
1	Dial in	11/18 06:11P 00:00:07 0100 100	3210001
2	Ext B fwd to Trk Y	11/18 06:13P 00:00:35 0100 100 11/18 06:13P 00:00:25 TRK0 0001	3210001 3210002
3	Ext B ONA to Trk Y	11/18 06:15P 00:00:12 0100 100 11/18 06:16P 00:00:00 0100	3210001 3210001
4	VM make call to Trk Y	11/18 06:18P 00:00:29 100 100 11/18 06:18P 00:00:58 0100 100	3210001 3210001

Calls Initiated by Trunk X to Extension B (Column B)			
5	### to Ext B (WG B, Virtual B) and VM make call	N/A	
6	Ext B S-transfer to Trk Y* (see examples)	11/18 06:19P 00:00:21 0100	3210001
		11/18 06:20P 00:00:41 0100	3210001
		TRK0	
		11/18 06:20P 00:00:23 3210	3210002
		0001	
7	Ext B B-transfer to Trk Y* (see examples)	11/18 06:22P 00:00:24 3210	3210002
		0001	
		11/18 06:22P 00:00:40 0100	3210001
		3210	
8	To Trk Y then transfer to Ext B	N/A	
9	Outcall	Log time only, no lines logged	
10	Zoomerang	11/18 06:24P 00:00:38 100	3210002
		0100	
		11/18 06:24P 00:01:08 0001	3210001
		100	
11	System Speed Dial	N/A	
12	Ext Speed Dial	N/A	
13	#35 privilege overwrite to Ext B (WG B, virtual B)	N/A	
14	B is WG B	11/18 06:25P 00:00:09 0100	3210001
		100	
15	Ext B transfer to WG C	1/18 06:26P 00:00:17 100	100
		0100	
		11/18 06:26P 00:00:24 0100	3210001
		111	
16	Conference with Trunk	11/18 06:27P 00:00:15 0001	3210001
		100	

Registration & Technical Support

This appendix describes AltiServ technical support policy and procedures. It also covers repair and replacement procedures that the user should follow when returning or replacing defective equipment.

Registration

Register your product to receive software updates and new product announcements.

To register your AltiGen product, fill out the “Product Registration Form” on page 432 and return the form to AltiGen Communications, Inc. by fax to 510-252-9738.

Technical Support

Before contacting Technical Support, always have the following information on hand:

- Your name
- Company name
- Product serial number
- AltiWare version number
- Number of boards in the system
- Server brand and model
- The telephone number where you can be reached
- A brief description of the problem and the procedure to reproduce the problem

Having this information ready will allow us to better assist you.

Eligibility

AltiGen provides technical support to Authorized AltiGen Dealers and Distributors only.

End User customers, please contact your Authorized AltiGen Dealer for technical support. **Direct AltiGen support is available to End User customers through E-mail only, when addressing problems that cannot be resolved by referring to the instruction manuals or by your Authorized AltiGen Dealer.**

Technical Support Hours

During AltiGen's business hours (7:00 A.M. to 5:30 P.M., Pacific Standard Time, Monday through Friday except holidays), your call will be returned in the order it was received (on a first come, first serve basis), within two (2) hours under normal circumstances. Outside AltiGen business hours, only emergency calls will be returned within eight (8) hours. All other calls are returned on the next business day.

How To Reach AltiGen Technical Support

Contact AltiGen technical support by any of the following methods:

- **CALL 510-252-9712 and follow the prompts. This is available to Authorized AltiGen Dealers and Distributors only.** Your call will be answered by one of AltiGen's Technical Support Representatives or routed to the Technical Support Message Center if no one is available to answer your call. Your call will be returned promptly, within two (2) hours under normal circumstances. Please see "Tech Support on AltiGen's Web site."
- **SEND EMAIL TO: support@altigen.com.** Messages are checked on a daily basis.
- **SEND A FAX TO 510-252-9738, ATTENTION: Technical Support.**

Tech Support on AltiGen's Web Site

AltiGen offers tech support on the web at **<http://www.altigen.com/ITCorner.html>**.

Unresolved Problems Escalation Procedure

The following escalation steps should be followed to report unresolved problems. Please contact the following parties in the order listed:

1. Local Authorized Dealers Service Department.
2. Altigen's Technical Support Manager at support@altigen.com.
3. For remaining unresolved problems or complaints, send an email to Altigen's CEO at ceo@altigen.com, or call 510-252-9712 x 120.

Repair and Replacement

This policy addresses the procedure for return of any materials to Altigen from Authorized Altigen Dealers only. It covers materials returned for any and all reasons.

All materials being returned to Altigen must have an associated RMA number. RMA numbers are issued by Altigen Customer Service and can be obtained by calling 510-252-9738. Altigen reserves the right to refuse return of any material that does not have an RMA number. The RMA number should be clearly marked on the outside of the box in which the material is being returned. For example:

**Attn.: RMA # 123
Altigen Communications, Inc.
47427 Fremont Blvd.
Fremont, CA 94538**

Upon authorization of return, Altigen will decide whether the malfunctioning product will be repaired or replaced.

Replacements

If the defective product is to be used until replaced, Altigen will ship the replacement product with an invoice. If the defective product is received by Altigen within 30 days of shipment by Altigen, the amount of the returned product will be credited to the account.

Registration Fax Form

Product Registration Form

DATE: _____

TO: AltiGen Customer Service

FAX: 510-252-9738

NAME: _____

COMPANY: _____

ADDRESS: _____

PHONE NUMBER: _____

COMPANY TYPE/INDUSTRY: _____

ALTIWARE (OE) PRODUCT SERIAL #: _____

DATE OF PURCHASE: _____

PURCHASED FROM: _____

FOR ALTIGEN USE ONLY	
RECEIVED BY:	DATE:

Glossary

A

AC - Alternating Current.

ADPCM - Adaptive Differential Pulse Code Modulation. A sophisticated compression algorithm for digitizing audio that stores the differences between successive samples rather than the absolute value of each sample. This method of digitization also reduces storage requirements from 64K bits/second to as low as 24K bits/second.

AltiConsole - a personal computer-based Attendant console connected to the AltiServ over the network that emulates a standard hardware-based Attendant console through software and has the flexibility of adding new features through software without changing the hardware.

AltiSpan - link from the AltiServ base to the system extension that allows for passing Caller ID.

AltiWare - the system software that is used by AltiGen's Quantum products.

AltiServ - an advanced, highly integrated business and computer telephony platform that consists of a Quantum card and AltiWare software working in a PC/Server running under Windows NT.

analog - a method of telephony transmission in which the information from the source (for example, speech in a human conversation) is converted into an electrical signal that varies continuously over a range of amplitude values.

API - Applications Programming Interface. A set of routines that an application program uses to request and carry out lower-level services performed by an operating system.

ASCII - American Standard Code for Information Interchange.

B

blocked calls - calls that cannot be immediately connected to the number dialed. A call is defined as blocked when access paths to the called station are unavailable. This is not applicable to AltiServ.

BPS - Bits Per Second. The number of bits transmitted per second.

C

card - printed circuit assembly.

CCIS - Common Channel Interoffice Signaling. A method of carrying telephone signalling information along a path different to the path used to carry voice.

Central Office (CO) - a switching system that connects lines to lines, lines to trunks, and trunks to trunks. These systems are operated by local telephone companies. The term sometimes refers to a telephone company building in which a switching system is located and sometimes includes other equipment (such as transmission system terminals).

Centrex (CTX) - a business telephone service offered by a local telephone company from a local central office. Centrex is a single line telephone service, delivered to individual desks or telephones with added features such as intercom, call forwarding, call transfer, toll restriction, out call routing, and hold on single line telephones. These features are provided by the local phone company's central office. Centrex is a leased business service serving as an option to owning a PBX or key telephone system.

channel - the smallest subdivision of a circuit capable of carrying communication service.

circuit - the physical connection of channels, conductors and equipment between two given points. Includes both transmitting and receiving capabilities.

client - a process whose threads call services provided by either a local or remote server process. In Windows NT, communication between a client and server occurs through the local procedure call (LPC) or remote procedure call (RPC) facilities.

CO - Central Office.

conference call - a call in which two or more persons speak together. Stations may be internal or external.

configure - to determine and assign the equipment cabinet or chassis contents and location of each card, as well as software parameters.

configuration databases - those databases that represent unique customer specifications relating to system and station features.

console phone - emulates a standard Attendant Console through software. It provides all the call handling features provided by a standard hardware-based console and has the flexibility of adding new features through software without changing the hardware (i.e. AltiConsole).

conversation path - the route from originating port to terminating port of a two-way communication. A conversation requires two such port-to-port paths. Transmit and receive.

CTI - Computer Telephone Integration. Or in the case of an AltiServ, Computer Telephony Internet.

D

database - a collection of related data that can be immediately accessed and operated upon by a data processing system for a specific purpose.

DC - direct current. The flow of free electrons in one direction with an electrical conductor, such as wire.

Default - the preset value from the factory or the software writer that the program or equipment comes with. In the absence of any other command from the user, it will work with default values.

DID - Direct Inward Dialing.

digit - a single whole number between 0 and 9.

disk duplexing - the procedure of copying data onto two hard drives, each using its *own* hard drive controller. If any component (hard drive controller card, cable, boot hard drive) on the first channel fails, then the second channel will boot and operate normally.

disk mirroring - the procedure of duplicating data written to two identical hard drives, where both hard drives are connected to *one* disk controller card. If one hard drive fails, then the data can be retrieved from the second hard drive.

DNIS (Dialed Number Identification Service) - is a telephone service that identifies for the receiver of a call the number that the caller dialed. It's a common feature of 800 and 900 lines. If you have multiple 800 or 900 numbers to the same destination, DNIS tells which number was called. DNIS works by passing the touch tone digits (DTMF or MF digits) to the destination where a special facility can read and display them or make them available for call center programming.

Do Not Disturb (DND) - when this feature is selected, all incoming calls to the user's extension are denied. If the station has system forwarding instructions, the calls will be automatically redirected to another extension, Attendant, or operator.

DTMF - Dual Tone Multi Frequency are the low and high frequency tones that comprise touch tone signals.

drop-down menu - a list of options that display below a menu option.

DSP - Digital Signal Processor. A microprocessor with an architecture that is particularly optimized to perform mathematical algorithms that manipulate digital signals.

Dual Tone Multi Frequency - see DTMF.

E

en-bloc dialing - dialing scheme that allows the terminal to include all the digits required to complete a call.

environmental subsystem - A protected subsystem (server) that provides an application programming interface (API) and environment - such as Win32, MS-DOS, POSIX, or OS/2 - on Windows NT.

escalation - to expand step-by-step from a limited or local issue to higher level.

Ethernet - a communications protocol used in local area networks to connect computers, terminals, printers, etc., typically located within the same building. Ethernet operates over twisted wire and over coaxial cable at speeds up to 10 megabits per second. Ethernet is a physical link and data link protocol reflecting the two lowest layers of the DNA/OSI model.

Exchange Server Integration - provides unified messaging by synchronizing the mailboxes in an AltiServ and Exchange Server, so that a user can access messages in either server. If a message is added to one server, it is automatically sent to the other server, similarly, if a message is deleted in one server it is automatically deleted from the other server.

extension number - an arbitrary number of two to five digits that matches a station to a particular user.

F

FCC - Federal Communications Commission.

feature - a special or specific capability.

field - a unit of data in a record or message and designated for a particular purpose.

file - an organized collection of related information treated as a unit.

file server - an integral part of a multi-user computer network such as a local area network (LAN). It typically is a combination of a computer, data management software, and large capacity hard disk drive. A file server directs all movement of files and data on a multi-user communications network and gives each user on the network access to files stored on the file server. It allows the user to store information, leave electronic mail messages for other users on the system and access application software on the file server such as word processors or spreadsheets.

FLASH - a sudden brief signal. Activated by depressing the flash key on the telephone pad if one has been configured, or by a quick press and release of the receiver button (switch hook).

FSK - Frequency Shift Keying. A modulation technique for data transmission.

function - a specific purpose of an entity, or its characteristic action. In computer programming, a synonym for procedure.

FXS - Foreign Exchange Subscriber. An analog interface for direct connection of a telephone set to a digital multiplexer.

G

GMT - Greenwich Mean Time. Mean solar time of the meridian at Greenwich, England, used as the basis for standard time throughout the world.

ground start - a type of start signaling on a subscriber's trunks in which the ring (minus side) is grounded (ground start) to get dial tone.

GUI - Graphical User Interface.

H

hard disk - a sealed mass storage unit used for storing large amounts of data.

hardware - a term used to describe the physical components of a machine, particularly computer equipment, and devices containing logic elements used in data processing or communication equipment.

Hertz - cycles per second. Abbreviated as Hz.

http or HTTP - Hypertext Transfer Protocol. The Internet protocol used to manage communications between Web clients (browsers) and servers.

Hunt group - see Workgroups.

Hz - see definition for Hertz.

I

Impedance - occurs when power or signal is transferred from one circuit to another. This is known as the resistance of electrical current to alternating current and it is measured in OHMs.

IMAP4 - Internet Message Access Protocol - Version 4.

interface - the interconnections between two separate systems or pieces of equipment.

ISA - Industry Standard Architecture.

ISO - International Standards Organization.

ISP - Internet Service Provider.

J

jack - the mate for a plug. Used to connect two pieces of equipment together.

K

keyboard - system interface for communication. A group of numeric keys, alphabetic keys, or function keys used for entering information into a terminal and into the system. Usually patterned after the QWERTY keyboard layout. This term is derived from the sequence of the first six keys in the first row of alphabetic keys.

L

Language Server - allows the ability to record and play phrases in different foreign languages without requiring any software changes.

Local address - an address used in a peripheral node or station in place of a network address and transformed to or from a network address for delivery purposes.

Logoff - the procedure by which a user disconnects from a program or session.

Logon - the procedure by which a user begins a program or terminal session and gains access to the AltiServ or Quantum system.

Loop Start - a type of start signaling. A closed path or circuit over which a signal can circulate. When used on a telephone line, it tests the line, the circuit is closed and reflects received signals to the sender.

M

maintenance - any activity intended to retain a functional unit in, or to restore it to, a state in which it can perform its required function. Maintenance includes keeping a functional unit in a specified state by performing activities such as test, measurements, replacements, adjustments, and repairs.

MAPI (Messaging API) - a Component Object Model (COM)-based API that supports message-related components such as message stores, address book, and message transport.

MDMF - Multiple Data Message Format.

menu - a display of a list of available machine functions for selection by the user.

MHz - Megahertz.

MIME - Multipurpose Internet Mail Extension. A technique designed to bundle attachments within individual email files. Microsoft email protocol software format.

module - a compact assembly that is a component of a larger unit in electronics. A detachable section, compartment or unit with a specific purpose or function.

mounting panel - the panel used to mount the connection panels to a wall.

ms - millisecond.

MVIP - Multi-Vendor Integration Protocol.

N

network - A configuration of data processing and/or telecommunication devices and software connected for information exchange.

network address - An identifier for a node, station, or unit of equipment in a network.

network domain - a set of workstations and servers that share a security account manager database and can be administered as a group. A user with an account in a particular network domain can log onto and access his or her account from any system in the domain.

network server - networking software that responds to I/O or computes requests from a client machine. Windows NT network servers can be implemented either as server processes or as drivers.

numbering plan - the method of assigning NNX codes to provide a unique telephone address for each subscriber, special line, or trunk destination. In AltiWare the method of assigning extension numbers and trunk designations to local premises.

North American Numbering Plan - also known as **NPA**. Refers to the assignment and management of the area code system for North America. Administered by Bellcore, presently being expanded due to high demand for new numbers and services, requiring new area codes. Numbering sequence being changed from traditional N 1/0 X area code (center digit a 1 or a 0) to NNX, where N = numbers 1 to 9 and X = any number.

O

offhook - refers to a telephone set when the receiver is not resting in the base. This usually initiates a dial tone from the receiver.

One Number Access - a feature of AltiWare that allows users to create a list of phone numbers that the system can use to track users and connect them with an incoming call if they are not at their extension desk.

onhook - the term used to describe a telephone in the idle state or with the receiver still resting in the base.

option - a selection from several possibilities.

OSI - Open Systems Interconnection. A software model defined by the International Standards Organization that standardizes levels of service and types of interaction for networked computers. The OSI reference model defines seven layers of computer communication and what each layer is responsible for.

overlap dialing - dialing scheme that allows the terminal to omit part of the digits required to complete a call, while the remaining digits are buffered.

P

PABX - Private Automatic Branch Exchange. A private branch exchange (PBX) that provides access to and from the public telephone network without operator intervention.

PBX - Private Branch Exchange. A switching system providing telephone communications between internal stations and external networks.

PCM - Pulse Code Modulation.

physical extension - is associated with a physical port and device. An extension is created, by default, as a physical extension (as opposed to a virtual or workgroup extension) unless there are no more physical ports available.

pilot number - the extension number that identifies a workgroup or distribution group.

POP3 - Post Office Protocol version 3. Protocol for retrieving email by remote client.

port - a communication channel through which a client process communicates with a protected subsystem.

POSIX - an acronym defined as "a portable operating system interface based on UNIX," refers to a collection of international standards for UNIX-style operating system interfaces. In the mid-to-late 1980's, government agencies began specifying POSIX as a procurement standard for government computing contracts.

Power Failure Backup - If your AC power fails, your telephone system can still operate by switching to a backup battery power supply, often called an (Uninterrupted Power Supply) UPS.

Power Failure Transfer - A telephone system feature. When the commercial AC power fails and there is no backup power source such as a battery or a generator, this feature switches some of the trunks connected to the telephone system to several single line phones that do not need external power and can draw their power from the telephone lines.

Power Supply - the part of the telephone system or a computer that converts the normal 120 or 240 volts AC power to AC and DC at the various voltages and frequencies as needed by various components and circuits of the system.

Private Network - A series of offices connected together by leased and non-leased telephone lines, with switching facilities and transmission equipment owned and operated by the user or by the carrier and leased to the user.

process - a logical division of labor in an operating system. In Windows NT, it comprises a virtual address space, an executable program, one or more threads of execution, some portion of the user's resource quotas, and the systems resources that the operating system has allocated to the process threads. It is implemented as an object.

Protected subsystems - integral subsystems that perform important operating system functions, such as security subsystems among others.

protocol - A set of rules and conventions by which two computers pass messages across a network medium. Networking software generally implements multiple levels of protocols layered one on top of the other.

Q

Quantum - an ISA standard computer telephony board of AltiGen's AltiServ product line. It is an all-in-one platform designed with open software standards to facilitate use of enhanced applications.

queue - a collection of calls waiting to be served. Queued calls in AltiWare are handled on a first-in, first-out basis.

R

RAM - Random Access Memory. The primary memory in a computer that can be written over with new information. The contents of RAM memory are lost when the electrical power to the PC is switched off.

RAS - Remote Access Service.

retry - to resend data a prescribed number of times or until the data is finally delivered.

RJ-11 - The "common" telephone jack. Usually wired with four wires, the red and green signify the tip and ring circuits.

RJ-45 - The "common" telephone jack. Usually wired with eight wires, the red and green signify the tip and ring circuits.

ROM - Read Only Memory.

root directory - in an IBM or compatible PC, the directory that is created when the user formats a diskette that may contain subdirectories. Synonymous with system directory.

S

save - to retain data by placing it in memory or by copying it from one storage device to another.

SDMF - Single Data Message Format.

server - a process with one or more threads that accepts requests from client processes. It implements a set of services that it makes available to clients running either on the same computer or possibly on various computers in a distributed network.

slot - a numbered division of a computer in which a printed circuit card is located.

SMTP - Simple Mail Transfer Protocol. Protocol for sending Internet email.

station - any location wired to accept a telephone, sometimes referred to as an extension. Also another name for a place where a call can be answered. It may be a telephone, an Attendant console, a PC, or any other device.

subscriber - a user or connection. The line from a telephone to a switch.

System Speed Dialing - this feature allows the user to access a system wide directory of commonly called numbers that have been “condensed” into a two- or three-digit code on the telephone dial pad.

T

TAPI - Telephone Application Programming Interface. A call-processing software that allows developers to implement telephony applications that control switches from different vendors.

TCP/IP - Transfer Control Protocol/Internet Protocol. A full set of protocols used on the Internet.

TDM - Time Division Multiplexing.

telecommunications - any transmission, emission, or reception of signals, writing, images, or other information by wire, radio, or any other electromagnetic system.

Tip and Ring - the traditional telephony indication of plus and minus in electrical circuits. (See Ground start and Loop start.)

toll call - a call to a point outside of the local service calling area. Identified by greater distance and increased rates or by 1 plus dialing requirements.

toll restriction - a feature that allows the user to restrict certain station users from placing toll calls, or other non-business related locations.

traffic - a measure of the demand or use of facilities, circuits, or trunks. Measured by converting seconds and minutes into CCSs (Centum Call Seconds) and Erlangs (hours of use per hour).

transfer - this feature redirects a call to another extension, the AltiGen Voice Mail System, or operator.

trunk - one of the cables that contain numerous shared telephone circuits used to interconnect telephone switching centers.

trunk access code - the prefix digit (i.e. 9) dialed to access a trunk line and dial an external phone number.

trunk group - trunks of a common type, given an identity to distinguish between different types of connecting facilities.

U

UCA - Universal Communication Architecture.

UPS - Uninterrupted Power Supply. A backup battery module attached to a computer that allows memory contents to remain intact long enough for the operating system to perform an orderly system shutdown if a power outage occurs.

USB - Universal Serial Bus.

user(s) - the person or persons accessing the features and functions of the AltiWare product.

V

virtual extension - an extension not associated with a physical port that allows for guest access to the AltiGen Voice Mail System features and telephone sharing environments. Users of a virtual extension have to log in before accessing the system features assigned to it.

W

WATS - Wide Area Telephone Service. A leased service for direct long distance dialing.

Wink - a single supervisory pulse.

Windows NT (New Technology) - the high-end Windows operating system in a family of Windows operating systems.

workgroup - telephones arranged in groups within a particular organizational function (for example, marketing, sales, service, etc.). Each workgroup is assigned a pilot number. When the pilot number is dialed, the system scans the list of extensions comprising the workgroup and connects the call to the first available idle extension number. If no extensions are available, the call is placed in that workgroup's queue.

workgroup pilot number - an extension designated to a workgroup that is not associated with a physical port and may consist of up to 64 members. When the pilot number is dialed, the call is distributed to the workgroup members.

World Wide Web - A network of Internet servers that can provide browser information in the form of "web pages" to web clients such as Netscape Navigator.

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