

The Altiris logo features a stylized red swoosh that curves from the top left, under the letter 'A', and extends to the right. The word "Altiris" is written in a black, serif font, with a small "TM" trademark symbol at the end.

Altiris™

**EXPRESS
INSTALLATION &
SETUP GUIDE**

NOTICE

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SECTION 1: **B A S I C S**

About This Version of Altiris eXpress

In previous versions of **eXpress**, the Console, database, and event management service were parts of a single program. Version 5 supports a distributed model that allows you to install these components separately to one or more computers, depending on the size of your network and how it is configured. The new “component” model is more scaleable and flexible. You can still install eXpress on a single computer if you are managing a small workgroup or lab, or you can install multiple components across a network that spans multiple sites. The product is flexible—you can set it up to meet your needs today and add components as your company grows and your management needs change.

Altiris clients (AClient and BootWorks) can now be installed remotely for Windows NT and 2000 computers. A remote installation tool allows you to install AClient, which sends information about the computer to the eXpress Server. This information can be used to install and configure BootWorks remotely from the Console—you no longer need to install and set up BootWorks separately. AClient also manages IP address and computer name changes by updating BootWorks for you when you reconfigure computers.

Altiris eXpress System Components

To help you understand how the components work, the following illustration shows each management component installed on a separate computer, although this is not a requirement. The illustration also shows only one of each type of component, but you can install multiple components (for example, more than one Console) in your system.

MANAGEMENT COMPONENTS

OVERVIEW

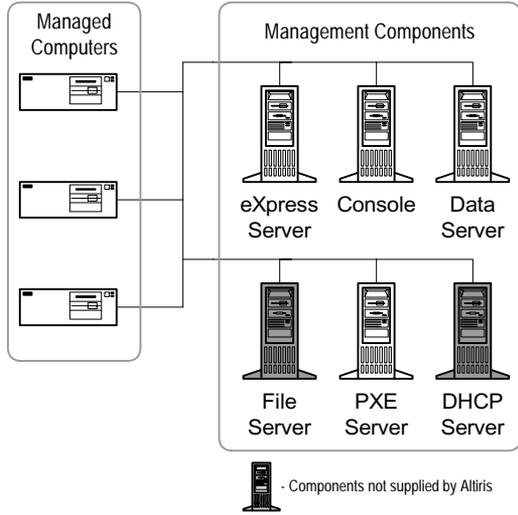
The **eXpress Server** controls the flow of work and information between the eXpress Console, database, file server, and managed computers. Managed computers connect and communicate with this Server. They "register" information about themselves with the Server, which then stores the information in the database.

The **eXpress Console** is a "window" into your system. It communicates with the database and the eXpress Server. You can define and assign events, see the status of computers and scheduled events, define new computers and perform many other tasks. The Console does not have to be running in order for events to be executed.

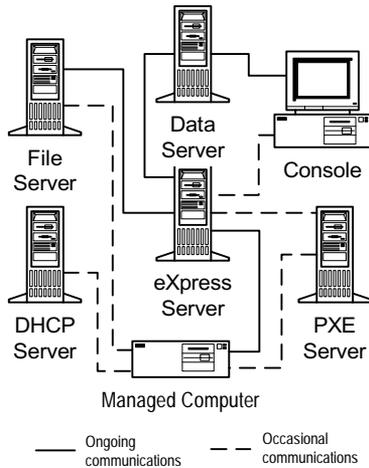
The **database** is a Microsoft SQL Server 7™ database. It stores data about your Events and the managed computers. The data is stored and used by the eXpress Server and the Console.

The **file server** is a Microsoft® or NetWare® server where your **Altiris eXpress program files** are installed. This is also where your image files, registry files, script files, etc. are stored. (File server software is not provided by Altiris.)

The **PXE Server** stores boot files that your computers download and run from RAM instead of from a file server or local hard drive. The PXE Server has two boot files—one for new computers and one for



Component Communications



managed computers. To use PXE (Intel's Preboot eXecution Environment), your hardware must be PXE-compliant and support Wake-on LAN. See Intel's web site for specifications.

The **DHCP server** is a computer running DHCP server software. It assigns IP addresses to PXE-compliant computers on your network, so they can boot using the PXE boot files stored on the PXE Server. DHCP is required in order to use PXE services. (DHCP server software is not provided by Altiris.)

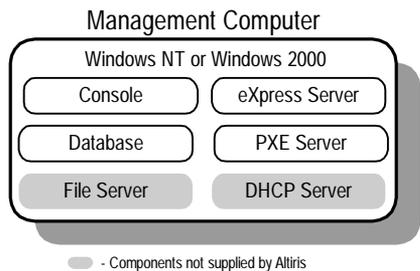
You can run all of the management components on the same Windows computer, or you can install them on separate Windows NT/2000 computers. You can install multiple Consoles, eXpress Servers, and PXE Servers, depending on your networking environment.

If you have a NetWare server, you can use it as your file server only. The eXpress Server, database, and Console must be installed on a computer with a Windows operating system. See “*System Requirements*” on page 18.

COMPONENT SCENARIOS BASED ON OPERATING SYSTEM

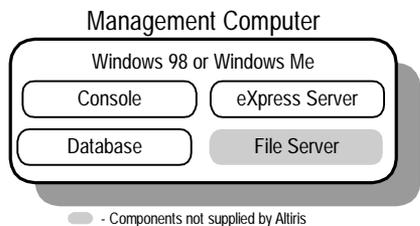
Windows NT/2000

These operating systems can run all components on the same computer, or you can install any combination of components on several machines.



Windows 98/Me

With this operating system, all management components are initially installed on the same computer. Windows 98/Me can't install programs to remote computers, and it doesn't support PXE. You can add components to your system later by installing programs locally.



NetWare The eXpress program files are installed to your file server, and your data files are also stored there. No other component can be run from the file server. Other components must run on a Windows operating system.

CLIENTS

Managed computers are client computers on your network that are registered in the eXpress database. This information is registered when an Altiris client (AClient and/or BootWorks) is installed on the computer, which then sends the IP and MAC addresses to the eXpress Server. The managed computers communicate with the eXpress Server, which routes information to the appropriate location (database, file server, Console).

You can set up events to start managing **existing computers** on your network and **new computers** that you haven't configured yet.

Any computer running a supported Windows OS can be used as a client.

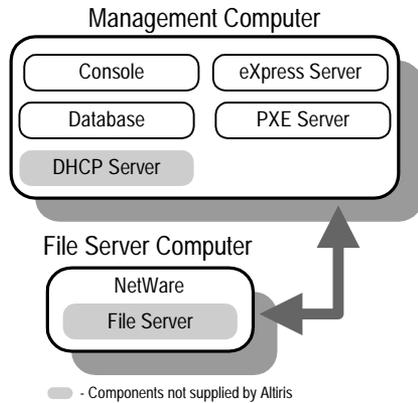
We recommend that you don't install Altiris clients (BootWorks or AClient) on your management components.

RELATED CONCEPTS

- Network Environments
- Altiris Clients Overview

Network Environments

The way you set up eXpress depends on the size of your network and the way it is set up. Review these brief descriptions and then see *Choose My Environment* on the setup screen (setup.exe) for planning information and recommendations for your specific network environment. You need to decide where you will install your eXpress components before you run the installation program.



SINGLE LAN

This type of environment has the following characteristics:

- One site
- One or more file servers
- One workgroup or user domain
- One subnet
- No routers

See *Choose My Environment* on the setup screen (setup.exe) for information about setting up eXpress in a single LAN environment.

SINGLE SITE

This type of environment has the following characteristics:

- One site
- One or more file servers
- A few workgroups or user domains
- A few subnets
- Hubs, switches, routers

See *Choose My Environment* on the setup screen (setup.exe) for information about setting up eXpress in a single site environment.

ENTERPRISE

This type of environment has the following characteristics:

- Multiple sites
- Several file servers
- Several workgroups or user domains
- Several subnets
- Hubs, switches, routers
- WAN connections between sites

See *Choose My Environment* on the setup screen (setup.exe) for information about setting up eXpress in an enterprise environment.

CLASSROOM OR LAB

This type of environment has the following characteristics:

- One site
- One file server
- One workgroup or user domain
- One subnet
- No routers
- Re-image or reconfigure frequently

See *Choose My Environment* on the setup screen (setup.exe) for information about setting up eXpress in a classroom or lab environment.

DEPLOYMENT CENTER

This type of environment has the following characteristics:

- One site
- Several file servers
- High client computer turnover
- No ongoing client management

See *Choose My Environment* on the setup screen (setup.exe) for information about setting up eXpress in a deployment center environment.

RELATED CONCEPT

- eXpress System Requirements

Altiris Clients Overview

Altiris has two client programs, the Altiris Client for Windows (aclient.exe) and the Altiris Client for DOS (bootwork.exe).

- **AClient** (aclient.exe) is a Windows client that sends information to and receives tasks from the eXpress Server. It manages Windows-level tasks and file transfers, sends hardware and registry information to the Server, and reports client status. AClient receives and executes all tasks that can be run from Windows (such as Remote Install Packages).
- **BootWorks** (bootwork.exe) is a DOS client that receives and executes tasks that can't be done from Windows, such as imaging. It manages DOS-level tasks with the eXpress Server, and file transfers with the file server. BootWorks can be installed to a computer's local hard drive, run from a file server (if the computer is booted with a boot disk), or run in the computer's RAM using PXE (for PXE-compliant computers).

Both clients communicate with the eXpress Server. BootWorks also transfers files directly to and from your file server.

When either client is run on a computer, it registers the computer's MAC address, computer name, serial number, etc. with the eXpress Server and the client is available to be managed from the Console.

RELATED CONCEPTS

- Altiris Client for DOS (BootWorks)
- Altiris Client for Windows (aclient.exe)
- Management Components

Altiris Client for Windows (aclient.exe)

The **Altiris Client for Windows (aclient.exe)** is a Windows client that allows your computers to be managed from the eXpress Console.

WHAT DOES THE CLIENT DO?

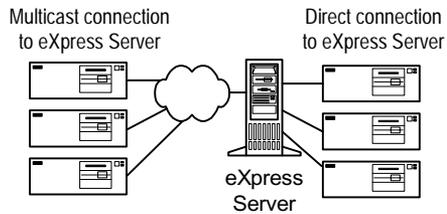
The Client:

- Registers client configuration information with the eXpress Server so the client can be managed.
- Receives events/tasks from the eXpress Server.
- Reports client status.
- Manages tasks that can be done from Windows (reboot a computer, install an application, remotely control a computer, etc.).
- Updates itself automatically when a new client is detected.

CONNECTION OPTIONS

You can set AClient to multicast for an eXpress Server or connect directly using the Server's IP address. Here are some things to consider when making the decision:

- In general, **multicasting** is easier to manage because it's more flexible. If you have multiple eXpress Servers and one becomes unavailable, computers can connect to a different server to be managed. If a server's IP address is changed, managed computers can still "find" it and connect. Whereas, if you use direct connections (static IP addresses), the IP address must be changed in AClient in order for the computers to locate the server.
- The benefit of **direct connections** is that they are faster, and in some environments they work better. (For example, many routers and switches do not allow multicasting, so client connections can only be made with direct connections.) Your Servers must have static IP addresses for direct connections.



RELATED CONCEPTS

- Altiris Clients Overview
- Multicasting
- Management Components

Altiris Client for DOS (BootWorks)

BootWorks is a DOS client. It boots computers to DOS and temporarily connects them to your **eXpress Server** before the normal Windows boot process begins. BootWorks checks the eXpress Server for assigned tasks that cannot be done from Windows, such as imaging and backing up/restoring registry files. If tasks are assigned, it connects the client to the **file server** to upload or download files. When the file transfer is complete, the client reports the status of the assigned tasks to the eXpress Server. After the tasks are run, BootWorks disconnects and the Windows boot process starts.

WHAT DOES THE CLIENT DO?

The BootWorks client:

- Boots client computers to DOS and loads minimal NIC drivers and protocols to communicate with the eXpress Server
- Locates an eXpress Server, and, if needed, registers its hardware information with the Server
- Checks for assigned tasks

If no tasks are assigned, the BootWorks Client terminates and the computer boots to Windows.

If tasks have been assigned to the computer, BootWorks logs in to the network and runs the assigned tasks. When all work is finished, it terminates and the computer is booted into Windows.

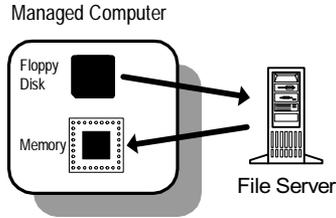
BootWorks can be executed from one of the following locations:

- A floppy disk (boots client to DOS and runs BootWorks from a network drive)
- The client RAM (downloads PXE boot files from the network)
- The client's local hard drive

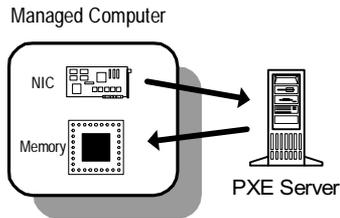
BOOTWORKS CLIENT OPTIONS

To help you determine which BootWorks boot option is best for your computers, review the brief descriptions below. BootWorks files are not interchangeable, so you will need to decide how your computers will boot in order to make the correct files for each computer or group of computers.

Run BootWorks from a boot disk. This option boots a computer using a floppy disk. The Client runs the BootWorks files on the disk, maps a drive to your **file server**, and runs bootwork.exe from the server. The bootwork executable is not installed on the local hard drive. You must boot the computer with the floppy disk each time you want to image, back up, or restore it.



Run BootWorks from the network. This option works for computers whose NIC and BIOS support PXE (Intel's Pre-boot eXecution Environment). The computer NIC gets connection information from the network, downloads BootWorks files from a **PXE Server** and runs bootwork.exe in RAM.

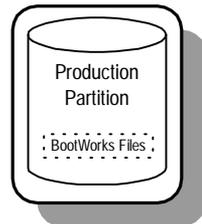


Run BootWorks from the local hard disk.

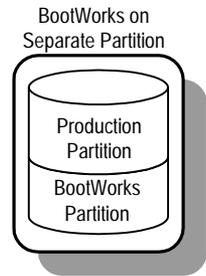
This option requires that you install BootWorks on the computer. By default, BootWorks is embedded in a hidden area of your hard drive production partition. However, you have the option to install it in its own partition.

- **Embedded BootWorks.** By default, the BootWorks Client is installed in a hidden area on the production partition of your hard drive. The program files are installed in a 5 MB area (which is marked as a bad sector to protect it from being overwritten or accidentally deleted). In most cases, this is the best and easiest way to install the BootWorks Client.

BootWorks on Production Partition (Embedded BootWorks)



- **BootWorks partition.** As an advanced option, you can install the BootWorks Client in its own partition. (You must have a partition slot available, because BootWorks takes the first partition slot on the local hard drive and moves the partition that occupied that space to the next available partition.) Use this option if you will be storing an image of the computer on its own hard drive. The partition size is adjustable. (See *Store Images on a Local Hard Drive* in the Console **Help** or in the *Altiris eXpress User Guide* for more information.)



RELATED CONCEPTS

- Altiris Clients Overview
- Multicasting

Multicasting Overview

Multicasting is a communication technology that enables computers and servers to use an IP address as a virtual group, or common information exchange area.

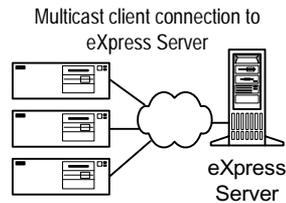
Multicasting is used in two separate eXpress features:

- Multicasting allows managed computers to locate an eXpress Server by sending a request packet instead of using the Server's IP address.
- The Altiris cloning/imaging feature uses multicasting to deploy an image to multiple computers simultaneously. You can download an image once and multicast it to other computers instead of having each computer download the image from the server individually.

These features are not related, and they have no dependencies on each other. However, both may be affected by limitations in your network environment (such as routers and switches that do not allow multicasting).

MULTICASTING FOR AN EXPRESS SERVER

Multicasting allows managed computers (running AClient or BootWorks) to use a multicast address to find an eXpress Server. The computers can multicast for any eXpress Server, or they can multicast for a specific Server name. After a Server is located, the clients connect to the eXpress Server IP address.



Some computing environments do not support multicasting for Server connections. For example, many routers and switches do not allow multicasting packets. In this case, your managed computers must connect directly to the eXpress Server using its IP address.

MULTICASTING A DISK IMAGE

When an imaging event is assigned to multiple computers, multicasting is used to deploy the image to the computers simultaneously. The image is downloaded to a Master computer (selected automatically by the eXpress Server), which uses multicasting to deploy the image to other computers. Multicasting is the default if you are imaging five or more computers, although you also have the option to deploy the image directly from the file server to each computer.

Disk Imaging

The term "imaging" means that you clone, or duplicate, an exact copy of a computer's hard disk onto another computer. This image is saved in a file that you can deploy to as many computers as you want. You create this image file by setting up a baseline computer (a computer with applications and settings you want on other computers) and uploading its image to a file server. By default, all files on the baseline computer are included in the image (although you have the option to upload individual partitions if you want to). When the image is sent to another computer, its hard disk is overwritten with the contents of the image file.

MAKING MANAGEABLE IMAGES

We recommend that you make images as generic as possible, so you have fewer to manage. You can customize managed computers that use the same image by adding RapidInstall packages, configuration options, scripts, etc. to the imaging event. As a general rule, you should make an image for each operating system/hardware platform combination. (This is important because the platform and operating system must be compatible.) In addition to the operating system, include standard applications, programs, and files that you want included on all of the computers that will use the image.

HOW IMAGING WORKS

Computers run the BootWorks DOS Client to manage imaging and registry backup/restore tasks. BootWorks uses multicasting to set up communications between computers that will run the event.

When you image a computer, the hard disk is overwritten with the contents of the image. This has several implications:

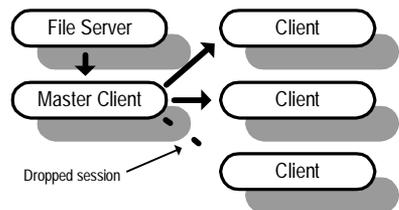
- All existing partitions are overwritten. For example, if you have three partitions on the computer and the image file contains one partition, there will be only one partition after the computer is imaged.
- When you create an image, everything on the baseline computer is included in the image. When you deploy the image, it overwrites the disks of the target computers. To ensure that computers can be managed by the Console after imaging, install AClient on the baseline computer.

HOW IMAGES ARE MULTICAST

The eXpress Server assigns a computer to be the "Master" for a multicast session. The Master computer downloads the image and manages the simultaneous imaging of the other client computers.

The multicast transmission is synchronized by the Master computer, so it goes only as fast as the slowest computer in the group.

If a computer fails, it will drop out of the session. The remaining computers will continue.



SECTION 2: PREPARE FOR INSTALLATION

System Requirements

NETWORK

TCP/IP is used for communication between all eXpress components. If you have a NetWare file server, IPX can be used to communicate with this component.

For Windows 2000 systems, you must set up Active Directory with the “Permissions compatible with pre-Windows 2000” option. If you chose the option “Permissions compatible only with Windows 2000 servers,” the eXpress Server cannot manage domain accounts for you. If you’re using Windows 2000 only permissions, change them from the Windows **Start** menu. Choose **Programs > Accessories > Command Prompt**. Add the group Everyone by typing **net localgroup “Pre-Windows 2000 Compatible Access” Everyone /Add**. Reboot all domain controllers for the change to take effect.

MANAGEMENT COMPONENTS

These requirements represent known boundary conditions for consistent eXpress system performance and stability. If you use other hardware or software, system reliability is compromised.

COMPONENT	HARDWARE	SOFTWARE
All components require Pentium II, 233 MHz processor (333 MHz or faster is recommended)		
eXpress Server	Memory: 64 MB (Win 95/98/Me) or 128 MB (Win NT/2000) Disk Space: 2.5 MB	*Windows 98/Me Windows NT 4.0 (SP 4 or newer) Windows 2000
Console	Memory: 32 MB Disk Space: 3.5 MB	Windows 95B or C (OSR 2.1 or newer) *Windows 98/Me Windows NT 4.0 Workstation or Server (SP 4 or newer) Windows 2000

COMPONENT	HARDWARE	SOFTWARE
PXE Server	<p>Memory: 32 MB</p> <p>Disk Space: 25 MB (for boot files)</p>	<p>DHCP server (must be on the network. Does not have to be on the same computer as PXE Server)</p> <p>Windows NT 4.0 Workstation or Server (SP 4 or newer)</p> <p>Windows 2000</p>
Database (Microsoft SQL Server™ 7.0)	<p>Memory: 64 MB</p> <p>Disk Space: 55 MB (for program files), plus space for data.</p>	<p>*Windows 98/Me</p> <p>Windows NT 4.0 Workstation or Server (SP 4 or newer)</p> <p>Windows 2000</p>
File server	<p>Memory: no additional memory required.</p> <p>Disk Space: 100 MB for eXpress program files <u>plus</u> space for storing files (image, boot, RIP, etc.)</p>	<p>*Windows 98/Me</p> <p>Windows NT 4.0 Workstation (supports 10 simultaneous logins only)</p> <p>Windows NT Server (SP 4 or newer)</p> <p>Windows 2000</p> <p>NetWare (file server only. Cannot use for any other component).</p>
<p>*If you use Win 98/Me (Millennium), be aware of the following platform limitations:</p> <ul style="list-style-type: none"> • Remote Install is not supported by these platforms. To install components on separate computers, run the Simple Install on one computer and then add components by running the install program on each computer where you want to add a management component. To install BootWorks, create install floppy disks to run on each computer. • These platforms support 100 connections. Each client uses two, so you can manage 50 client computers. If the file server is on the same computer as other components, Windows can reliably handle only 30 clients. • If you are using domains, accounts must be managed manually at the domain server. eXpress can reset domain accounts automatically only on Win NT/2000. 		

CLIENTS

HARDWARE

- Pentium processor
- 5 MB disk space for AClient
- 5 MB disk space for BootWorks (if installing to local hard drive)
- 32 MB memory

SOFTWARE

One of the following Windows operating systems: Windows 95B or C (OSR 2.1 or newer); Windows 98; Windows Me; Windows NT 4.0 (Service Pack 4 or newer); Windows 2000

Network Planning

Find your network type and the planning information that applies to you in “Network Environments” on Page 8. Since you can install components (eXpress Servers, Consoles, PXE Servers, etc.) to different computers, you need to plan where you will install each component before you run the Install Wizard.

Note: To share eXpress’ Remote Client Installer on Windows NT/2000, File and Print Sharing must be enabled.

Required User Accounts, Shares, and Rights

MANAGEMENT COMPONENTS

On each computer where you plan to install a management component (eXpress Server, Console, file server), you need administrative rights.

Hint: Creating this account using the same name and password on each computer will be easier to remember than using the names and passwords of existing accounts with different names.

FILE SERVER

If you are installing eXpress on a remote file server (not the computer where you are running the install program), create a share (or give Read/Write rights for NetWare) on the file server where eXpress will be installed. The share must allow access to all of the other components, including clients and the eXpress service account. (See “eXpress Server” below.) This share must be created before you begin installing! If you are not installing to a remote computer, you can select the option to create the share during install.

EXPRESS SERVER

Create a user account to run the eXpress service. (The service runs as a user account, not a system account.) You must create this account on each eXpress Server. The account must have full rights to the eXpress directory/share on the file server, and it must be logged into the file server.

Important! The account must have a non-expiring password.

Assign a static IP address to this computer. Other components will not be able to connect to the Server if you use DHCP and the IP address gets changed.

To install the eXpress Server to a remote computer, the default NT/2000 admin shares must be present. Restore any shares that have been removed before you install eXpress.

DATABASE

To install the database to a remote computer in a domain, the default NT/2000 admin shares must be present on the operating system. You must have an account with administrator rights in order to install.

Whenever you launch a Console to manage your eXpress system, the account you use to log into the Console computer must exist on the database computer and have administrative rights.

SECTION 3: SYSTEM INSTALLATION AND SETUP

Installation Requirements

- If you have other Altiris products installed (such as PCT Pro and RapiDeploy), keep them in separate product directories. Installing to the same directory might overwrite versions of executables designed specifically to work with each product.
- In most cases, you should install eXpress program files on one file server only for the network where it will be used. Installing the program files in more than one location will create an entirely separate eXpress system that does not synchronize with others. You can add management components and map additional file server drives to your existing system, but do not install additional program files unless you want to set up a separate system.

Running the Install Wizard

SIMPLE INSTALL

This option installs all **management components** on the same computer. (See “Altiris eXpress System Components” on Page 5 for an illustration of management components and client components.) The file server, eXpress Server, database, and Console are installed to the computer where you run the Install Wizard. DHCP is chosen for IP address management. PXE is also installed if you are installing on a PXE-compliant Windows NT/2000 computer.

If you use the Simple Install program on a Win NT/2000 computer, PXE is installed by default and the following options are set to support it:

- Clients use IP (instead of multicasting) to connect to an eXpress Server.
- The UNDI driver is selected for the PXE boot files.
- Client boot files are automatically created and stored on the computer.

Choose the **Simple Install** option if any of the following conditions exist:

- You are installing on a Windows 98/Me computer.
- You do not have a NetWare file server. (If you do, choose the **Custom Install** instead.)
- You have a small network (fewer than 50 clients or fewer than 30 clients if this is also your file server).

To run a simple install,

1. Choose **Simple Install** from the main menu.
2. Enter the following information in the **Install Information** screen:
 - a. Enter the drive letter and path where you want to install the eXpress program files. (The default is C:\express.)
 - b. Make sure the default option is selected to create a share on the eXpress directory.
 - c. Browse to locate and select the license file. (This is the activation key you received when you registered the serial number of your software on the Altiris web site. It has an .lic extension.)
 - d. Enter the username and password of the user account you set up to run the eXpress service. If you use a domain account, enter the domain and the username. (For example, Domain1/administrator.) If you did not set up the account, create it before you begin the install. For more information, see “Required User Accounts, Shares, and Rights” on Page 20.
 - e. Choose **Next** to see a summary of components to be installed.
3. Choose **Next** to install the components listed on the summary screen, or choose **Back** to modify settings before starting the install.

The install program runs, and the status screen shows you the progress. After the install is complete, you will see a prompt asking if you want to install clients.

At this point, you can do any of the following:

- Install clients.
- Add more components to your system.
- Change the default settings applied during the Simple Install.

INSTALL CLIENTS

For Windows NT/2000 clients, select **Remote install clients** to set up the installation. See “Remote Client Installation” on Page 29 for instructions.

For Windows 95/98/Me, you must install the client software locally. There are several ways to do this. For example, you can add commands to the client login script to map to AClient on your file server and run the executable, or you can e-mail a shortcut or **aclient.exe** to users and have them copy the file to their local hard drives and run it.

ADD MORE COMPONENTS TO YOUR SYSTEM

To add Consoles, eXpress Servers, etc. to your system, run the Install Wizard again and select **Add Components**. See “Add Components To Your System” on Page 32.

CHANGE DEFAULT SETTINGS APPLIED DURING THE SIMPLE INSTALL

To change default settings that were applied during the Simple Install, create a new configuration using the Boot Disk Creator tool (on the Console tool bar). Change the default settings to:

- Use a different NIC driver than the default (UNDI).
- Use multicasting instead of static IP to connect client computers. (You must have a driver that supports PXE, or use BootWorks.)
- Use BootWorks instead of PXE.

CUSTOM INSTALL

INSTALLING THE CONSOLE AND PROGRAM FILES ON YOUR FILE SERVER

Enter information about the file server where the eXpress program files will be installed. This is also the server where your images, RIPs, and other files will be stored. You can install eXpress program files to a share on a Microsoft 98/Me or NT/2000 computer, or on a Novell NetWare file server.

Note: By default, an eXpress Console will be installed on the computer where you run the install program. Additional Consoles can be installed later using the **Add Components** feature of the **Install Wizard**.

1. Enter the drive letter and path for the file server where you want to install the eXpress program files. (If you are upgrading, enter the drive letter and path where your 4.1 program files are installed.)
2. Create a share or set up access rights to the eXpress directory by completing one of the following steps:
 - a. If you are installing to the local Windows computer, select the option to create a share on the eXpress directory. If you entered a path to a remote file server or you chose an invalid path, the option will be grayed out.
 - b. If you are installing to a remote file server, you must create a share or set the access rights to the eXpress directory before you begin the install. Your eXpress system will not run until access rights are set. For more information, see “Required User Accounts, Shares, and Rights” on Page 20.
3. Browse to locate and select the license file. (This is the activation key you received when you registered the serial number of your software on the Altiris web site. It has an **.lic** extension.)

INSTALLING THE EXPRESS SERVER

Enter information about the computer where you want the eXpress service installed.

To install the service on the local computer,

1. Select **On this computer**. The destination path and IP address of the computer will be filled in for you.
2. Enter the username and password for the service in the **Username for the service** and **Password for the service** fields. If you use a domain account, enter the domain and the username. (For example, domain1\admin.)

To install the service on a remote computer,

1. Select **On a remote computer**.
2. Enter the name of the computer where you want to install, or select it from the list. The destination path and IP address of the computer will be filled in for you. (If the program can't locate the IP address, enter it manually.)
3. Enter the username and password for the service in the **Username for the service** and **Password for the service** fields. If you use a domain account, enter the domain and the username. (For example, domain1\admin.) If you did not create this account, create it before you start the installation.

CREATING THE DATABASE

Specify where you want to create the eXpress database. You can create it on an existing Microsoft SQL Server 7 engine, or you can use the MSDE engine provided with eXpress. You must have admin rights with full control properties on the target computer or database.

Choose one of the following options:

- To install the MSDE and database on the local hard drive, choose **On this computer**.
- To install the MSDE and database on the eXpress Server, choose **On the same computer as the eXpress Server**.

Note: If you are installing the eXpress Server to the local drive, both of the choices above have the same result, so it does not matter which one you choose.

- To install the MSDE and database on a remote computer that is not the eXpress Server, choose **On a remote computer**. Enter the name of the computer. The path will be created for you.
- To create the eXpress database on an existing SQL server, choose **On an existing Microsoft SQL Server 7 database**. Enter the name of the database. You must be currently logged in to the database using an account with administrator rights.

DECIDING HOW YOUR CLIENT COMPUTERS WILL BOOT

Indicate whether client computers will run BootWorks locally or use Intel's Pre-boot eXecution Environment (PXE). You can use PXE only if your computers comply with PXE requirements.

Note: If you have a Novell file server, you can install the PXE server but you will not be able to create PXE boot files during the installation. This is because the UNDI driver, which is used by default, is not supported. After the install is complete, go to the PXE server and run the Boot Disk Creator to create PXE boot files that include your specific drivers. If the Boot Disk Creator is not installed on the PXE server, you can run it from the network.

To specify how your client computers will boot,

1. If you do not want to use PXE, choose **No**.
2. If you want to install PXE, choose the appropriate **Yes** option, depending on where you want the PXE server files to be installed. If you are installing to a remote computer, use **Browse** to find and select the **Remote Computer Name**.

Note: When you install PXE, the Wizard finds the eXpress Server IP address and fills it in for you. It also selects a default path for installing the eXpress Server.

3. Choose **Create default PXE boot files** if you want the Install Wizard to make boot files on the PXE server. (Copies are also stored on the file server.) If you want to make boot files with a different configuration (for example, if you want to use a different driver than UNDI), deselect the option. This installs the PXE server without creating boot files.

Note: If you don't create default PXE boot files during the installation, you can make them later by running the Boot Disk Creator on the PXE server. If the Boot Disk Creator is not installed on the PXE server, you can run it from the network. Choosing the client/server connection type

4. Choose the protocol your client computers will use to connect to the eXpress Server.

Note: If you are installing PXE with the defaults (UNDI driver), choose **TCP/IP**. The UNDI driver does not support multicasting. If you want to use a different driver, you can make PXE boot files on the PXE Server after you finish the install.

Choose **Use IP multicasting** to allow the clients to connect to any eXpress Server on the segment. To use multicasting and connect with a specific eXpress Server, enter the **Server name**.

If clients are on a different segment, or you are using PXE with the UNDI driver, choose **Use TCP/IP** and enter the IP address of the eXpress Server the clients will

connect to. Use the default port number unless that number is already in use on your network. (If you change the port number, you will have to change the client configurations to get them to connect.)

STARTING THE INSTALL PROGRAM.

Choose **Next** to install the components as you have defined them in the Install Wizard. Or, choose **Back** to change settings before starting the install.

The install program runs, and the status screen shows you its progress. After the install is complete, you will see a prompt asking if you want to install clients.

At this point, you can:

- Install clients.
- Add more components to your system.

INSTALLING CLIENTS

For Windows NT/2000 clients, select **Remote install clients** to set up the installation. See “Remote Client Installation” on Page 29 for instructions.

For Windows 95/98/Me, you must install the client software locally. There are several ways to do this. For example, you can add commands to the client login script to map to AClient on your file server and run the executable, or you can e-mail a shortcut or **aclient.exe** to users and have them copy the file to their local hard drives and run it.

ADD MORE COMPONENTS TO YOUR SYSTEM

To add Consoles, eXpress Servers, etc. to your system, run the Install Wizard again and select **Add Components**. See “Add Components To Your System” on Page 32.

SECTION 4: REMOTE CLIENT INSTALLATION

You can use the Altiris Remote Client Installer to install AClient (aclient.exe) on Windows NT/2000 computers. You must have administrative rights to the computers and File and Print Sharing must be enabled. When AClient is installed on a computer, it is ready to be managed remotely from the Console. You can then use the Console to install BootWorks on the clients (if you are not using PXE).

We recommend that you don't install Altiris clients on your management components.

Important! If you are using PXE to boot your clients, you must set up the BIOS in each computer's hardware setup program before PXE will work.

Install New Clients

1. Open the installer by choosing the **Remote Client Installer** icon from the Console toolbar, or select it from the **Tools** menu.
2. Choose **Add**.
3. Enter the username and password of the account that has administrative rights to the client computers that you will add to the remote install list. If you don't use an account with the appropriate rights, the install will fail.
4. Set up the client configuration as follows:
 - a. Enter or browse for the computer name where you want AClient to be installed.
 - b. If you want to prevent users from modifying AClient settings, select **Secure AClient properties with a password**.
 - c. If you are using domains and want to change the client security ID (SID) every time you image the computer, select **Enable Changing of Security ID**.
 - d. Choose **Advanced** to set AClient settings other than the default. Choose **Next** to use default settings and select clients to add to the install list.
5. Browse the network and highlight the domains, groups, or computers you want to add. You can choose multiple computers from the lists. Choose **OK**.
6. The computers appear in the installer list, choose **Install**. The status of the computers is shown on the installer screen.

7. If you are not using PXE and you want to install BootWorks on a computer's local drive, highlight the computer or group from the list in the Console, right click, and choose **Advanced > Install BootWorks**.

Modify Existing Client Settings

To remotely modify AClient on computers where it is already installed, you will need to reinstall it with the settings you want to change.

Note: if you change the computer names or IP addresses and you have BootWorks installed locally on the computers, AClient will modify the BootWorks configurations for you.

1. Follow the instructions for installing new clients, and add the clients you want to change to the remote install list.
2. Make the modifications you want in the client configuration wizard screen.
3. Choose **Install**.

You can also change settings for clients in the remote install list, if you have clients that did not install correctly (according to the status shown on the list).

1. Highlight the client and choose **Properties**.
2. Enter your user account and password.
3. Choose **Client Settings** and modify the settings.
4. Choose **Install** to reinstall AClient with the new settings.

Modify the Default Client Configuration File

If you previously installed clients using the remote client installer, a configuration file was created with the settings you used for the installation. If you want to add clients with different settings (for example, if you previously installed clients with a multicast setting and you now need to add clients with static IP addresses to your system), follow these steps:

1. Open the installer by choosing the **Remote Client Installer** icon from the Console tool bar, or selecting it from the **Tools** menu.
2. Choose **Global Client Properties** from the **Edit** menu.
3. Modify the configuration settings.

4. Add clients that you want to reinstall with new configuration settings to the remote installer list.
5. Choose **Install**.

Install Clients From an Import File

In order to use the Import option in the remote client installer, you must create a file that contains the computer names of the clients you want to import.

1. Open the installer by choosing the **Remote Client Installer** icon from the Console tool bar, or select it from the **Tools** menu.
2. Choose **Import** and browse to select the import file. For an example of the required syntax, choose **Help** on the **Import** screen.
3. The computers appear in the remote installer list. Choose **Install** to install AClient with the default configuration.

SECTION 5: ADD COMPONENTS TO YOUR SYSTEM

How To Add a Component

ADD A CONSOLE

1. Go to the computer where you want to install the Console. (You cannot install a Console remotely.)
2. Start the eXpress Installation Wizard (setup.exe).
3. Choose **Add Component**.
4. Enter the path to where your eXpress program files are installed. (All components must have a drive mapped to your eXpress directory.)
5. Choose **Install an Additional eXpress Console**.
6. Choose **Next** to install the Console.

ADD AN EXPRESS SERVER

INSTALL THE SERVER

1. Start the eXpress Installation Wizard (setup.exe).
2. Choose **Add Component > Install an Additional eXpress Server**.
3. Enter the information about the computer where you are installing the new eXpress Server.
4. Choose **Next** to install the eXpress Server.

INTEGRATE THE SERVER INTO YOUR SYSTEM

In order to use the new eXpress Server in your eXpress system, you might need to modify client settings.

- If your clients use multicasting and have not been set to connect to a specific eXpress Server name, you don't need to change any connection settings for them to start using the eXpress Server. Clients will connect to the first eXpress Server they find.
- If your clients use static IP addresses or a specific eXpress Server name, you will need to change the AClient transport properties for the clients to start using the new

eXpress Server. You can modify AClient on each client computer, or use your normal AClient distribution process to install updated clients with the new settings.

ADD A PXE SERVER

1. Start the eXpress Installation Wizard (setup.exe).
2. Choose **Add Component** > **Install an Additional PXE Server**.
3. Choose the computer where you want PXE to be installed.
4. If you have multiple eXpress Servers, choose **List eXpress Servers** and select the Server that you want to associate with the PXE Server.
5. Choose **Next** to install the PXE Server.

Note: When you install PXE, the Wizard finds the eXpress Server IP address and fills in the **IP address** field for you. It also selects the UNDI driver as the default and creates the PXE boot files (one for managed computers and one for new computers). The boot files are copied to the PXE Server.
6. If you want to change the default configuration of the PXE boot files, run the Boot Disk Creator on the PXE Server. At the PXE Server, choose **Start** > **Programs** > **Altiris** > **Altiris eXpress** > **Boot Disk Creator**.

ADD A NEW FILE SERVER DRIVE MAPPING

If you need additional disk space for storing images, RIPs, personality packages, etc., you can map drives to another hard disk or file server. You must add the drive mappings to the BootWorks configuration files, eXpress Server settings, and Consoles.

1. Add the new drive mapping to your existing client BootWorks files so they can locate and download image files from the new location. Depending on how the computers boot, do one of the following:
 - If your managed computers use PXE boot files, run the Boot Disk Creator on the PXE Server. Add the drive mapping to the configuration and create PXE boot files. The boot files with the new drive mapping are ready to use. For details, see “Using the Boot Disk Creator” in the *Altiris eXpress User Guide*.
 - If your managed computers have BootWorks installed locally, deploy an event to add the new drive mapping to the local BootWorks files. At the Console, create an event and add a Run Script task. In the script field, type the path to the **net use** command followed by the new drive letter and UNC path. For example:

```
c:\net\net use g:\server1\images
```
2. Add the drive mapping to your eXpress Server.
 - a. Choose **Start > Settings > Control Panel**.
 - b. Double-click **Altiris eXpress Server**.
 - c. Choose **Options > Add**.
 - d. Select the **Drive letter** and browse for the **UNC path** to the new directory. Make sure this drive letter matches the mapping you included in the BootWorks configuration.
3. Add the drive mapping to your eXpress Consoles.
 - a. Choose **My Computer > Tools > Map Network Drive**.
 - b. Select the **Drive letter** and browse for the **UNC path** to the new directory. Make sure this drive letter matches the mapping you included in the BootWorks configuration and the eXpress Server mapping.
 - c. Choose **Finish**.
 - d. Repeat these steps for any additional mappings/shares that you want to correct.

SECTION 6: UPGRADE FROM ALTIRIS EXPRESS OR LABEXPERT 4.1 TO 5.0

Important! In order to update program files and migrate your existing data to the new database, run the Install Wizard on your eXpress 4.1 Console. If you do not want to migrate your existing data (eXpress 4.1 images and events, RIPs, computers, users, etc.), install to a different file server than the one where eXpress 4.1 program files are installed.

1. Start the eXpress Install Wizard (setup.exe).
2. Choose the type of install you want to do. The **Simple Install** option installs all management components on the same computer. The **Custom Install** option allows you to install components to other computers on your network. See “Altiris eXpress System Components” on Page 5 for an overview of what will be installed and what your options are.
3. Follow the instructions for the type of install you selected. For a **Simple Install**, see “Simple Install” on Page 22. For a **Custom Install**, see “Custom Install” on Page 25.

Note: Some RapidInstall Packages (RIPs) might need to be updated, depending on their content. If you have a RIP that does not work correctly after you upgrade, you can update it using the RIP Update utility in RapidInstall.

Note: Your 4.1 images will continue to work correctly in most cases. However, if you installed 5.0 to a different file server and your images include BootWorks, you will have to update BootWorks to use the new path, or remove BootWorks from the image.

AClient will update itself automatically when managed computers connect to the new eXpress Server. If AClient is included in an image, the old AClient will connect and update every time the image is deployed. You can update AClient in the image if you want to, but it is not required.

SECTION 7: TROUBLESHOOT CONNECTION PROBLEMS

How BootWorks Connects to the eXpress Server

If a client computer is booted with a BootWorks disk, all drivers are loaded and a full login takes place, regardless of whether work is assigned. The boot disk maps a drive to the eXpress Server and runs BootWorks, which connects to the eXpress Server to check for work.

If a computer boots from a BootWorks partition, the process is slightly different. Only the LAN drivers needed to communicate with the eXpress Server are loaded (from the autoexec.bat file), then bootwork.exe is run. It registers the client's MAC address, computer name, IP address, etc., and checks for work from the Server.

- If no work is assigned, BootWorks exits and the computer boots to Windows.
- If work is assigned, BootWorks exits and the rest of the network drivers load. BootWorks is reloaded, registered with the eXpress Server, and the user login is completed. BootWorks receives and processes the assigned tasks. When all tasks are completed, BootWorks logs out and the computer boots to Windows.

Troubleshooting BootWorks

The BootWorks Diagnostic Utility allows you to locate and fix BootWorks problems in DOS.

START THE BOOTWORKS DIAGNOSTIC UTILITY

To start the utility,

1. At the computer that is not working properly, boot to DOS and start BootWorks.
2. Watch for the prompt **Press <F2> to go into diagnostic mode**. The program pauses at this prompt for three seconds. If you locked the screen and keyboard, you will have to disable the lock before you can access the DOS screen.
3. Press <F2> to go to the **Main Menu**. From the menu you can do all of the tasks described in this section.

CHECK THE DOS NETWORK CONNECTION

If you want to make sure the NIC is working and you have a valid IP address, you can “ping” the Server or another client.

1. From the main menu, choose **Diagnostic menu > IP diagnostics > Ping**.
2. Enter the IP address of the Server or computer you want to ping.

FIX THE CLIENT IP CONNECTION TO THE EXPRESS SERVER

Follow these steps to isolate and solve BootWorks connection problems on new and managed computers. This test determines if the client computer can connect to the eXpress Server with a direct IP connection. Use the **Diagnostic Menu** option on the **Main Menu** to complete these tasks.

1. Determine if IP initializes.

Choose **IP Diagnostics > Initialize IP**. If you are using DHCP, you can watch IP initialize on the screen to see if the client computer gets an IP address from the DHCP server. (If you are using static IP addresses, you will not see the initialization.)

2. Get client information.

From the **IP Diagnostics** menu, choose **Display IP Address**. Check the information to see if the client’s addresses are valid and the BootWorks version is correct. You will get the following information:

- BootWorks and the packet shim versions
- IP gateway, subnet, and MAC addresses
- Bootworks type (embedded or separate partition)

3. Connect to the eXpress Server.

From the **IP Diagnostic Menu**, choose **Connect to eXpress Server**. Enter the Server’s IP address and then check the Console to see if the computer connects. If the connection is successful, the client’s icon and name will appear in the **Computers** list on the Console. (The icon will be gray.)

4. Update or register the client with the eXpress Server.

- a. If the client is a managed computer, choose **Update with eXpress Server** from the **IP Diagnostics** menu.

On the Console, see if the computer updates with the database. If it updates correctly, the client’s icon on the Console will turn blue.

Choose **Disconnect from eXpress Server** from the **IP Diagnostics** menu.

To continue troubleshooting, go back to the **Main Menu** and choose a new option. To exit the diagnostic utility, choose one of the following:

To continue the BootWorks boot program without making changes, choose **Continue with normal operation**.

To use modified settings when BootWorks reboots, choose **Set MBR to reboot to BootWorks**.

To exit BootWorks and start the Windows boot process, choose **Exit BootWorks**.

- b. If the client is a new computer, choose **Get initial deployment list** from the **IP Diagnostics** menu. The Console sends a list of pre-defined events to the client.

To register the new computer with eXpress, choose the name assigned to it (when the computer was defined in the “virtual computer” list at the Console).

Choose the task set that you want the computer to run.

The client will register and run the assigned tasks, and then boot to Windows.

FIX THE CLIENT MULTICAST CONNECTION TO THE EXPRESS SERVER

Follow these steps to isolate and solve multicasting problems on new and managed computers. Choose the **Diagnostics Menu** option on the **Main Menu** to complete these tasks.

1. Verify that the client can communicate via multicast by joining a session and sending packets to the session.
 - Choose **Multicast Diagnostics > Join Multicast Group**. Watch the status on the screen to see if the client connects to the multicast session.
 - Choose **Multicast Diagnostics > Send Multicast Packet** to see if the client can send packets successfully.
 - Choose **Multicast Diagnostics > Leave Multicast Group** to disconnect the client from the session.
2. If the client multicast is working correctly, the problem might be caused by network traffic. You can adjust this by setting the number of packets sent in a burst and the delay time.

To check the traffic and adjust packet settings, set up one client as a sender and one as a receiver as follows:

- a. At the client computer that will send the test packets, choose **Multicast Diagnostics > Sender** and enter the IP address, port number, and TTL for the sender and receiver. Also enter the packet settings you want to test.
- b. At the client computer that will receive the test packets, start the diagnostic utility and choose **Multicast Diagnostics > Receiver**. Enter the IP address, port

number, and TTL for the sender and receiver. You can watch the packet status to see if they are being received correctly.

- c. To continue troubleshooting, go back to the **Main Menu** and choose a new option. To exit the diagnostic utility, choose one of the following:

To continue the BootWorks boot program without making changes, choose **Continue with normal operation**.

To use modified settings when BootWorks reboots, choose **Set MBR to reboot to BootWorks**.

To exit BootWorks and start the Windows boot process, choose **Exit BootWorks**.

CHECK THE CLIENT SETTINGS

Sometimes problems occur when the client settings do not match the settings saved in the eXpress database. This can happen if configuration changes are made at the Console and they are not deployed to the client.

Use the **Diagnostic Menu** option on the **Main Menu** to view the settings.

1. Choose **System Information** to view the following:
 - Computer name
 - Operating system and version
 - BootWorks and packet shim versions, sizes, and dates
 - SMBIOS settings (such as manufacturer, asset tag, and serial number)
2. Compare these settings with those recorded for the computer in the **Properties** page on the Console. If there are discrepancies, you can update software or change configuration settings as necessary to synchronize the information. To change some settings you might need to edit the protocol or system **.ini** files. Use the **Edit** option on the **Main Menu** and enter the name of the file you want to edit.
3. To continue troubleshooting, go back to the **Main Menu** and choose a new option. To exit the diagnostic utility, choose one of the following:
 - To continue the BootWorks boot program without making changes, choose **Continue with normal operation**.
 - To use modified settings when BootWorks reboots, choose **Set MBR to reboot to BootWorks**.
 - To exit BootWorks and start the Windows boot process, choose **Exit BootWorks**.

FIX THE DHCP ADDRESS

If you are using DHCP to assign IP addresses, you can use this option to see the address that was assigned and make sure it is valid. If the address is not good, you can delete it and have another one assigned.

Use the **Diagnostic Menu** option on the **Main Menu** to check the address.

1. To see the address assigned to the computer by the DHCP server, choose **Display Microsoft DHCP**.
2. If the address assigned is not valid, or if you want the DHCP server to assign the computer a new one, choose **Delete Microsoft DHCP**.
3. To continue troubleshooting, go back to the **Main Menu** and choose a new option. To exit the diagnostic utility, choose one of the following:

To continue the BootWorks boot program without making changes, choose **Continue with normal operation**.

To use modified settings when BootWorks reboots, choose **Set MBR to reboot to BootWorks**.

To exit BootWorks and start the Windows boot process, choose **Exit BootWorks**.

View System Messages While BootWorks is Running

Use this option to set the messages you want to see while BootWorks is running. Choose the **Set Debug Message Level** option on the **Main Menu**. You can:

- Turn on/off debug messages.
- Turn on/off DHCP messages.
- Turn on/off IP messages.

Press **Enter** to turn the messages on or off.

To continue troubleshooting, go back to the **Main Menu** and choose a new option. To exit the diagnostic utility, choose one of the following:

- To continue the BootWorks boot program without making changes, choose **Continue with normal operation**.
- To use modified settings when BootWorks reboots, choose **Set MBR to reboot to BootWorks**.
- To exit BootWorks and start the Windows boot process, choose **Exit BootWorks**.

View BootWorks Autoexec.bat File Settings

Use this option to see the contents of the BootWorks autoexec.bat file. Choose the **BootWorks Settings** option on the **Main Menu** to look at the file. If you want to edit the file, see the following section, “Edit The BootWorks Autoexec.bat File.”

Edit The Bootworks Autoexec.bat File

If you have problems with BootWorks, you might need to change some settings in the autoexec.bat file to correct them. There are two ways to edit these files:

- To change the autoexec.bat file on a specific computer, use the **BootWorks Diagnostic Utility**. Any changes you make will apply only to the computer where you ran the utility. Choose **Edit** from the **Main Menu** and then enter the filename.
- To make changes to an autoexec.bat file used by multiple computers, change it in the configuration file (.bdc). In the **Boot Disk Creator**, choose the configuration from the **Configurations** list and then select the autoexec.bat file. You might want to reinstall or reboot the computers that use the configuration so they have the updated version.

Command-line parameters and options for BootWorks (bootwork.exe) and BootWorks install (bwinst) are explained in the *Altiris eXpress User Guide*.

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