



Acer Altos® Wireless Office Solution Guide

This solution guide will give you an example of how to set up and configure a Small Office/Home office environment using Acer products.

Abstract

In this Solution we will be using an Acer Altos G510 Server with Microsoft Windows 2003 Server, a WLAN 11g Broadband Router for Internet access and Tapeware Backup Software to administer your Tape Backup device for data protection. With just these components you can build a full network infrastructure with DHCP Services, Internet access*, Secure WiFi, File Server, Data Backup and central user administration using the Microsoft Active Directory.

*Note: Internet access is optional and requires a DSL Modem with an Ethernet Network port and an Internet Service Provider.

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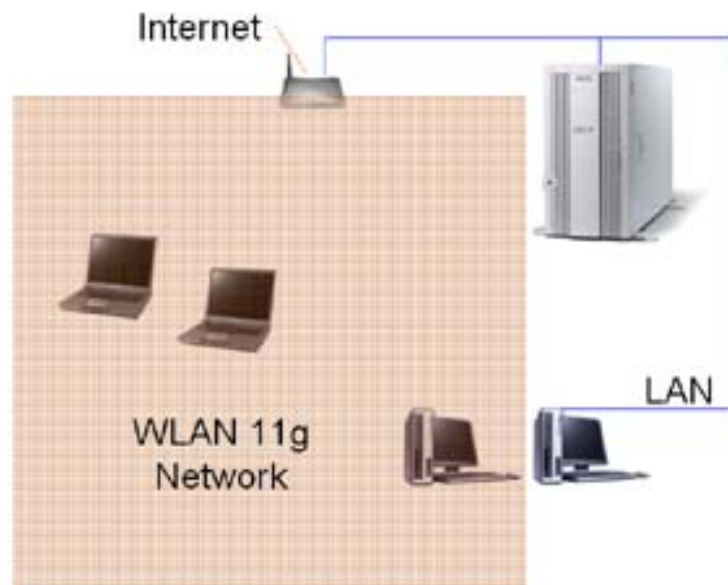
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INTRODUCTION

The Small Office/Home office segment is an important part of Computer and Server business. In many offices there is a need for central user administration and data storage. Next to the traditional desktop computer connected through a cable with the Server, there is also a need for more flexible workstations. Today a portable computer enables people to be more flexible and this works best in combination with a high speed wireless network connection. This Guide will give you an example of how to set up an Office environment, how to keep your network secure and how to protect and back up your data.



Who should read this Guide

This configuration guide is intended for:

- Acer resellers who are providing technical solutions to customers.
- Customers who are implementing a Wireless Office at their site.

Course Goals

Enable engineers and partners to fully implement a Wireless Office using a combination of Acer Products. This is meant to be an example installation and for specific environments you may need to make some changes.

Prerequisites

Applicants should meet the following prerequisites (or equivalent experience):

- Acer Server Product Training (or knowledge about the current Acer Server product range and technology)
- Acer RAID Workshop (or work experience with Server RAID Adapter and RAID technology)
- Networking and Wireless LAN technology basics
- Microsoft Windows 2003 Server knowledge or experience (Installation and configuration)
- Installation and configuration of Microsoft Active Directory

PRODUCT INFORMATION

In this section you will get an overview of the Products used in our Wireless Office Example Installation.

Acer WLAN 11g Turbo Broadband Router

This is a Router for wireless connection of computers to an existing network or the Internet (DSL Modem with Ethernet port and Internet provider is required).

- WAN Port for DSL Modem
- Integrated Access Point (IEEE 802.11g Turbo, 108Mbit/s)
- 4x Port 10/100 Mbit Switch
- WEP 64/128, WPA and 802.11x encryption
- Firewall function for protection against hackers
- Simple Installation, independent from the operating system with web-based configuration.

With Acer's WLAN 11g Turbo Broadband Router several computers can surf high-speed in the Internet, no matter if DSL-, or wired Modem. The integrated Access Point not only connects the computers wirelessly to the Internet but to an existing network aswell. The 4 Port Switch enables you to connect to wired computers or a server. Additionally, the Router is equipped with a firewall as protection from hackers. Through VPN-Technology, Home-Offices or branches can easily be connected via Internet or Teleworker to be connected to the Intranet of your company. Acer's WLAN 11g Turbo Broadband Router offers an All-in-One solution for sophisticated Home- and SOHO-Users.



Acer Altos G510 with LSI 320-1 RAID Controller

Expandability is an important item to consider when choosing the ideal server partner to support your company's growing needs over the coming years.

The Acer Altos G510 is not only a very good price/performance server but is also equipped with the latest DDR (Double Data Rate) memory technology and U320 hard disk controller, which dramatically increases the overall speed of the server. It is destined to become the standard memory and to replace the well-known SDRAM in the future.

Together with the Dual Xeon CPU support this mid-entry-level model has all the features you need to launch or expand your company IT structures.

- Dual Xeon DP 533Mhz FSB (up to 3,06 GHz)
- SCSI = LSI 53C 1020 Ultra 320 1 Ch. Onboard
- 1x Onboard Gigabit BCM 5702 (10/100/1000) LAN
- Memory max. 4GB (4x DDRAM)
- Chipset = Server Works GC-SL
- Redundant 450 W Power Supply (1+1)
- 2x PCI-X 64Bit/100MHz, 2x PCI-X 64Bit/66MHz, 2x PCI 32Bit/33MHz
- 6 x HDD Hot Swap 1" Cage (1 Channel)
- LSI 320-1 RAID Controller (add on Card, optional)
- Backup Drive (optional) SONY SCSI AIT-2 Drive Internal 50-130GB



LSI 320-1 RAID Controller

- Integrated 64 MB ECC SDRAM cache memory
- Intel GC80302 integrated I/O processor
- IA-64 ready
- 64-bit, 66 MHz PCI 2.2
- RAID 0, 1, 10, 5 and 50
- Auto resume during array reconstruction
- Advanced management and configuration utilities
- Supports up to 40 logical drives per controller
- Background initialization for Quick RAID 5 set up
- One single-channel LSI53C1020 Ultra320 SCSI controller

Backup - SONY SCSI AIT-2 Drive Internal 50-130GB

AIT is Advanced Intelligent Tape format developed and widely supported by Sony. Currently AIT has three generations and one advanced Super-AIT. AIT tapes have an archival life of 30 years and a usage life of 30,000 end- to-end passes. In size, AIT cartridges are bigger than DDS but smaller than DLT and LTO-ULTRIUM.

- AIT-1: capacity 35GB native, 4.0MB/sec native transfer rate
- AIT-2: capacity 50GB native, 6.0MB/sec native transfer rate
- AIT-3: capacity 100GB native, 12.0MB/sec native transfer rate

Like the DDS format, AIT is also backward compatible with previous generations. Presently the future roadmap is also well defined up to AIT-6 to arrive by 2007.

AIT Advantages:

- Corporate Data is outgrowing tape capacity of existing DDS
- AIT as the post-DDS tape format
- ALDC – Adaptive Loss-less Data Compression 2,6 : 1 Compression
- AME - Advanced Metal Evaporated media provides a reliable and robust data protection.
- Build-in Head Cleaner
- MIC - Memory In Cassette : Speed up the data search and restore

Tapeware Backup Software:

Tapeware, developed by Yosemite Technologies Inc., is a powerful end-to-end storage management and backup solution. It's easy-to-use interface and all-in-one design make it the perfect software to grow with your storage needs. Tapeware enables protection against data loss and file corruption. Ensures rapid recovery after disk or system failure with the ability to process large files efficiently. Tapeware offers high performance features that are critical for many commercial applications.

TravelMate 6000 Series with Windows® XP Professional Edition

The TravelMate 6000 series is a stylish Centrino™ Notebook designed for mobile self-employed users and professionals from small and medium sized companies on the lookout for a slim and light desktop replacement with generous performance for challenging applications, prolonged battery life, flexible and far reaching communication and security facilities.

Example: TravelMate 6003LCi

Mobile Intel® Centrino™ Technology with Intel® Pentium® M 1.6GHz processor - Intel® 855GME chipset - Intel® PRO/Wireless 2200BG, Microsoft® Windows® XP Professional Edition, 15.0" SXGA+ TFT display, 40GB HDD, 512MB (2*256) DDR, 56Kbps modem, wired LAN 10/100/1000 and integrated wireless LAN (802.11g), DVD-CDRW, 64MB VRAM shared, SmartCard reader, Li-Ion battery



Acer Veriton 3600GT with Windows® XP Professional Edition

Equipped with proactive PC health pre-warning, chipset level protection for confidential data and a space saving housing with a tool less design, the new Veriton 3600GT guarantees both security and quality. Its optimised performance with minimised down time increases productivity and its easy use allows any user to manage the PC efficiently.

Example: Veriton 3600GT

Veriton 3600GT, Intel® Pentium® 4 2.6GHz (400 FSB), Microsoft® Windows® XP Professional Edition, 256MB DDR400 PC3200, 40GB, DVD drive



You can include your Acer Veriton PC in your wired LAN, but also by adding the Acer WLAN 11g USB dongle into your Wireless Environment.



INSTALLATION AND CONFIGURATION

Before you can start with the Installation you need to add the LSI 320-1 RAID Controller and the AIT Backup Tape drive to your Altos G510 Server. Please insert the RAID Controller in one of the free 64 Bit PCI Slots. Remove the SCSI Cable currently connected to the On board SCSI Controller and connect the cable to the LSI 320-1 RAID Controller. Now the cable connects the RAID Controller with the Hot Swap Cage.

Also, insert the AIT Tape drive in the 5 1/4" Drive bay. Add the power connector and connect a SCSI cable from the on board Controller to the Tape Drive. Make sure your Cable is properly Terminated at the Tape Drive.

Setting up the Altos G510 RAID Array

On the Altos G510 we are using an LSI 320-1 RAID Controller. The Server has a one Channel Back plane and we will create a RAID 5 over three HDDs.

On the first start of the Altos G510 press Ctrl-M to get into the MegaRAID set up utility. Go through all the possible options and ask Questions if you have any.

When you are ready, create a new Array :-

1. Select **Configure -> New Configuration** (Note: Choosing "New Configuration" will erase any former configuration, do **not** select this option if you simply want to add a new Array group to an existing configuration)
2. You will see a list of Drives available for your RAID Array, use the arrow keys to move between them
3. Press **Spacebar** to select the disk for your Array. You must select at least three Drives to create a RAID 5.
4. Press **Enter** when you are done with the selection.
5. Finish your physical Array selection and press **F10** to create a Logical Drive.
6. Choose the **RAID Level** (in this case **RAID 5**) and confirm the Logical Drive by using the **Enter** key
7. After you are done do not forget **to initialise** the **Logical Drives**. If you select the Initialise option in the Controller menu it will destroy any existing data on the Array. This is wanted on the first installation, but be careful with this on already installed systems.

Now that you array is configured you can soon start the Installation.

Installing Windows 2003 Server

As most RAID Controller Drivers are not part of the Operating System you will need to press the F6 key when you start the installation from CD to add additional drivers.

1. Boot from the Windows 2003 CD
2. Press [F6] in the very beginning of the Windows 2003
3. When the system displays "S=Specify Additional Device....", press "S" and apply the diskette and Install Driver for your RAID Controller press the "Enter" key.
4. Continue the installation for Windows 2003

Please verify in the Device Manager if all devices are installed properly. At this point there is no additional Service pack necessary for Windows 2003 Server.

Network Setup:

Please make sure that you connect a Network Cable from the RJ45 Ethernet port of your Altos G510 to your WLAN Acer Broadband Router.

Configure the Altos G510 Ethernet

In this example you will now assign static IP address to the Network Adapter on the Altos G510 Server. This Server will be your Domain Controller.

1. Select Start > Control Panel > Network Connections > Local Area Connection.
2. Click the Properties button
3. Select Internet Protocol (TCP/IP) and click Properties.
4. IP Address: 192.168.1.10, Default Gateway 192.168.1.1 – Note: The default Gateway IP Address is the Address of your WLAN Router. Check the user guide of the Router if the default IP address has changed.
5. Subnet mask: 255.255.255.0
6. Enter also the DNS IP with 192.168.1.10

You should now be able to ping the Router IP address from the Altos Server. To do so, open up a command prompt and type "ping 192.168.1.1".

Configure the Broadband Router

Open the Internet Explorer on your Altos G510 Server to start the Web-based Administration Tool, type `http://192.168.1.1` in the Address bar.

You need to identify yourself with the default admin username and password (see Router User guide)

The Setup page allows you to edit the basic configuration parameters for your router, such as Host Name, Domain Name, LAN IP Address, WAN IP Address, PPPoE Login, UPNP, and so on.

In most cases, the default settings will be Okay for you. However, different ISPs (Internet Service Provider) may ask for specific requirements, please check it with your ISP if you are not sure.

Please enter the correct ISP Information and make sure to disable the DHCP Services on the Router (for this example).

Note: You can of course also use the DHCP Service of the Router, but make sure not to have multiple DHCP Servers in your Network.

Configure Wireless LAN

Make sure the Wireless LAN on your Router is enabled and set the following settings:

Mode:

Selects the Wireless Mode that your Company Access Point & Router supports from the drop-down list. Available options are 802.11B, 802.11G, and MIXED which supports both 802.11B and 802.11G.

ESSID :

Type the unique identifier for the Extended Service Set which is shared by client stations in an infrastructure association, such as ACERWLAN. It is case-sensitive and cannot exceed 32 characters.

Channel:

Select one IEEE 802.11G channel for wireless LAN transmissions from the drop-down list. Specify the bandwidth which the wireless radio operates. Access Points and the client stations that are associated with it, work in one of the channels from 1 to 14.

Secure Wireless LAN

To make sure your Wireless Network is secure you need to change a few additional settings.

WEP (Wired Equivalent Privacy):

If you want to prevent other stations without specific WEP (Wired Equivalent Privacy) keys from linking to the Access Point, select "Enable" next to Encryption and then click "Set WEP Keys" to specify relevant keys; otherwise, select "Disable". For detailed instructions on how to set the WEP Keys, please reference the section "To Set WEP Keys".

MAC (Media Access Control) address :

If you want to allow access to the Internet based on user's MAC (Media Access Control) address, select "On" next to Wireless Access Control and then click "Set Access List" to specify relevant MAC addresses; otherwise, click "Off". For detailed instructions on how to specify relevant MAC addresses, Please reference the section "To Set Wireless Access Control".

We recommend that you at least set the Encryption by using a 64bit or 128 bit WEP key. You can either type this key as a hexadecimal number or as a phrase.

Note: Once you set up the encryption and the WEP key you will also need to use the same WEP key on every single System that you want to grant WLAN access.

You can also use the MAC address to limit access to your wireless network, however, in this case you will always need to add a new MAC address (of a new Workstation, Notebook or a new Network card) to the access control list in your Router.

Note: We recommend to use WEP key encryption for normal security and a combination of WEP key and MAC address control list for high WiFi security. Do not use any Wireless LAN network without any encryption.

Setup the Domain Controller and DNS

Before you can run DCPromo on the Altos G510, you must install and configure a Domain Name Server (DNS). The following procedure describes the tasks involved in implementing a DNS structure.

- Click Start > Control Panel > System.
- On the "Computer Name" tab, click the Change button.
- For Computer name, type ACERDC1 and click the More button.
- For Primary DNS suffix, type what will become your Fully Qualified Domain Name (FQDN) for example, "wlan.acer-euro.com" and click OK > OK.
- Allow your computer to reboot when prompted.
- Open Control Panel > Add or Remove Programs > Add/Remove Windows Components.
- Highlight Networking Services and then click Details.
- Check the box for Domain Name System (DNS) and verify no other options are selected. Click OK > Next and finally Finish.
- Click Start and choose Administrative Tools > DNS.
- Expand your local machine and click Forward Lookup Zones.
- Right-click Forward Lookup Zones and choose New Zone to start the wizard. Click Next.
- Verify that Primary zone is selected; deselect the option for storing the zone in Active Directory and click Next.
- For the Zone name, type the FQDN for your domain (for example, wlan.acer-euro.com), and click Next.
- Accept the default new file name, and click Next.
- Click the option to Allow both nonsecure and secure dynamic updates. Click Next > Finish.
- As a final step, test the name resolution.

Note: If you also want to have Internet access for your client Computers, you need to configure your DNS to make a lookup at your ISP DNS Server in case it can not resolve the name within the local network.

After the installation of the DNS you are now ready to promote the Server to your Domain Controller:

- Log on to your DC1 server as Administrator
- Click **Start > Run**, type **dcpromo** and press ENTER to launch the Active Directory Installation Wizard.
- Select the options to create a Domain controller for a new domain.
- Domain in a new forest
- Enter your domain name (i.e. wlan.acer-euro.com) Click Next.
- Accept the default Domain NetBIOS name, Database and Log folders, and SYSVOL folder location by clicking Next.
- Examine the DNS Registration Diagnostic results and click Next.
- Ensure that Permissions compatible only with Windows 2000 or Windows Server 2003 server operating systems are selected and click Next.
- Leave the Restore Mode Password blank and click Next.
- Review the Summary page and click Next, observing the messages as Active Directory is installed on your server.
- Click Finish and Restart Now to reboot your server.

After the reboot run Net Share, and verify that the SYSVOL and NETLOGON shares exist. You can also check the log files of the Active Directory Installation. To do so open the Dpromo.log and Dcpromoui.log files in the %systemroot\Debug directory. (Double-click the files, and they should open in Notepad.)

Dynamic Host Configuration Protocol (DHCP)

DHCP allows you to assign IP addresses to network clients automatically and dynamically, as needed, and to automate, centralize, and simplify IP address and option configuration and distribution across your network. This helps to prevent address conflicts, and protects against common configuration errors that can occur when values are entered manually at each computer.

DHCP is a client-server protocol. All versions of Windows include DHCP client software, which is installed when the TCP/IP protocol stack is installed. The DHCP server service is included with Windows Server 2003 and Windows® 2000 Server, but is not installed by default.

The DHCP server is typically configured with a range or *scope* of IP addresses that it is allowed to distribute to clients. Clients lease an IP address from the scope for a specific period of time, which can range from minutes or hours to days or months. The client contacts the server to arrange for renewal before the lease expires.

1. Open **Control Panel > Add or Remove Programs > Add/Remove Windows Components**.
2. Highlight **Networking Services** then click **Details**.
3. Check the box for **DHCP**.
4. Choose **Start > Programs > Administrative Tools > DHCP**.
5. Highlight your server and choose **New Scope** from the Actions menu.
6. When prompted for the name of your scope, choose the name of your site (for example, ACERscope).
7. For the Start IP address, input 192.168.1.100 and for the End IP address, input 192.168.1.200
8. Set the subnet mask Length
9. Change the Lease Duration to 8 hours.
10. Choose Yes to configure DHCP options for clients.
11. Add 192.168.1.1 for your configured router / default gateway
12. Enter the Server name of your local DNS server , click **Resolve** and then click **Add**.
13. Skip the WINS configuration as we are not using WINS on the network.
14. Choose to activate the scope now.

Note: Your DHCP Server must be authorized in the Domain, or you can't run it.

Client Computer Setup

To set up your client Computer, such as the TravelMate 6000 or the Veriton 3600GT you simply set them up as usual. Make sure they are either connected to the Ethernet or have a WLAN card (build in).

Start up each Computer and follow the instructions on the screen. As we already have a DHCP Server in our network there is no need to manually configure these settings.

When your network setting is correct and you can ping the Domain Controller you need to join each Client as a member of a domain. To join the domain right click "My Computer" and select "properties". Here you can select "Computer Name" and click on "change". Type in the full domain name and when prompted supply a domain account with administrative rights. After joining the domain the clients will need to reboot.

Note: When you have problems setting up the Wireless LAN workstations or you can not ping the Server, please verify the Wireless LAN security settings. Remember that you need to specify the exact WEP key in the client setup as well.

Create Users and Groups

Use the Active Directory Users and Computers Snap-in to create new groups and OUs (Organisational Units). Add the appropriate users in your domain to each new global group. Make sure that when you create the Domain Users in your active Directory, to assign them a user home directory and depending on the needs in your environment also create additional File Shares on your Altos G510 Server.

Organizational Units

An organizational unit (OU) is a container object that you use to organize objects within a domain. OUs are used for resource management. An OU contains objects, such as user accounts, groups, computers, printers, and other OUs. You can delegate administrative control over the objects within an OU.

Backup Software Installation

First ensure that your Tape device is installed properly in the G510 Server. You can verify this by checking in the Device Manager. Once your Tape drive is set up correctly, you can start with the installation of the Backup Software by inserting the Tapeware CD. The Installation Manager will automatically appear on your screen as shown below. Just click on "Install Tapeware".



The Tapeware installer will guide you through each step of the installation. It's best practice to accept the suggested locations it offers. For your G510 server installation with the Tape drive connected, the important points to note are :-

- Create new Storage Management Zone when prompted.
- Protocol should be selected as Internet TCP/IP
- Tapeware should be run as a service

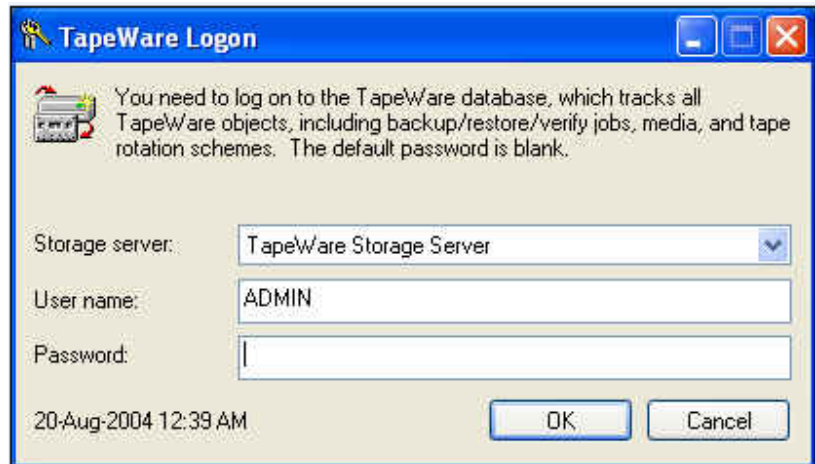
After creating the Storage Management Zone on the G510 server, you can then install the Tapeware Software on the Clients. Follow the same procedure as for the G510 with the one exception being :-

- Join an existing Storage Management Zone

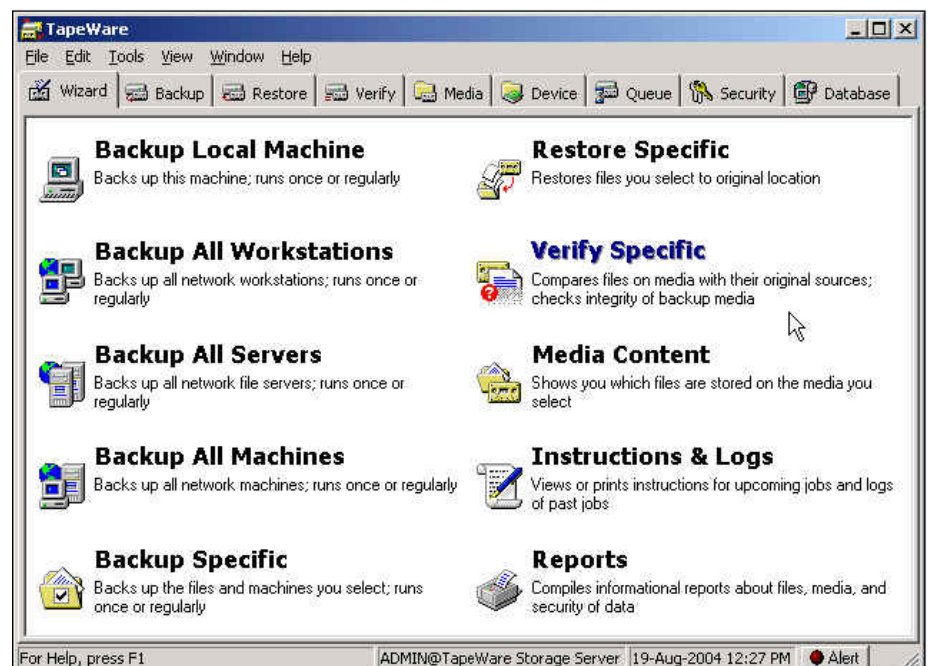
For more information on Installing Tapeware, please reference the "Installation Guide" on the Tapeware CD.

Backup Software Configuration

After successfully installing the Tapeware Backup Software you will see the "Tapeware Administrator Icon" on your Screen. Double click on it and you will see the following Logon screen :-



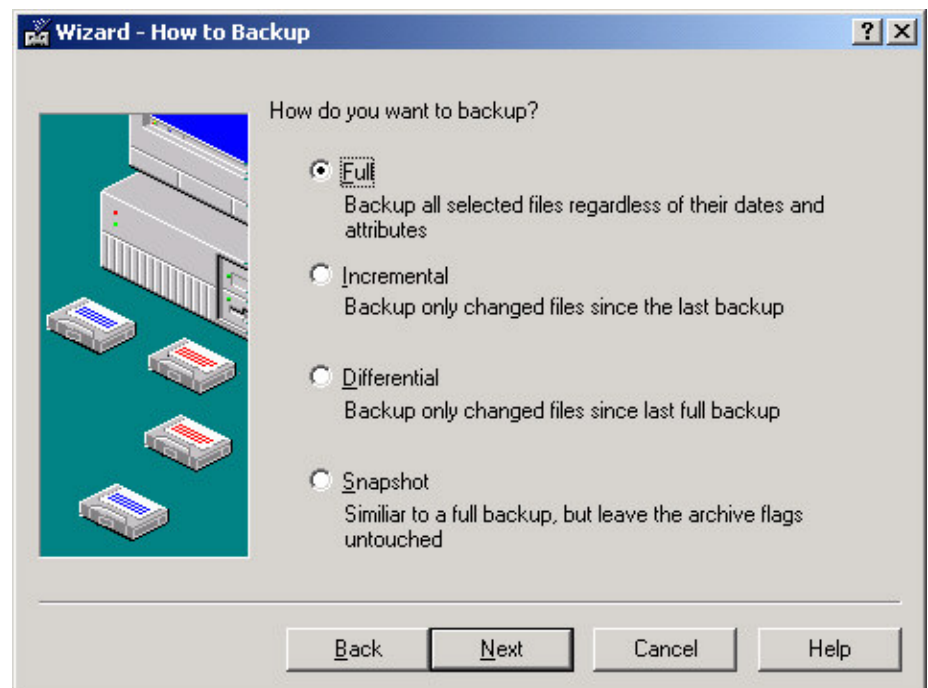
There is no Password by default so just click OK. You will then see the Tapeware Wizard :-



You can now select the type of Backup you wish to perform. For more information on using Tapeware, Please reference the "User Guide" on the Tapeware CD.

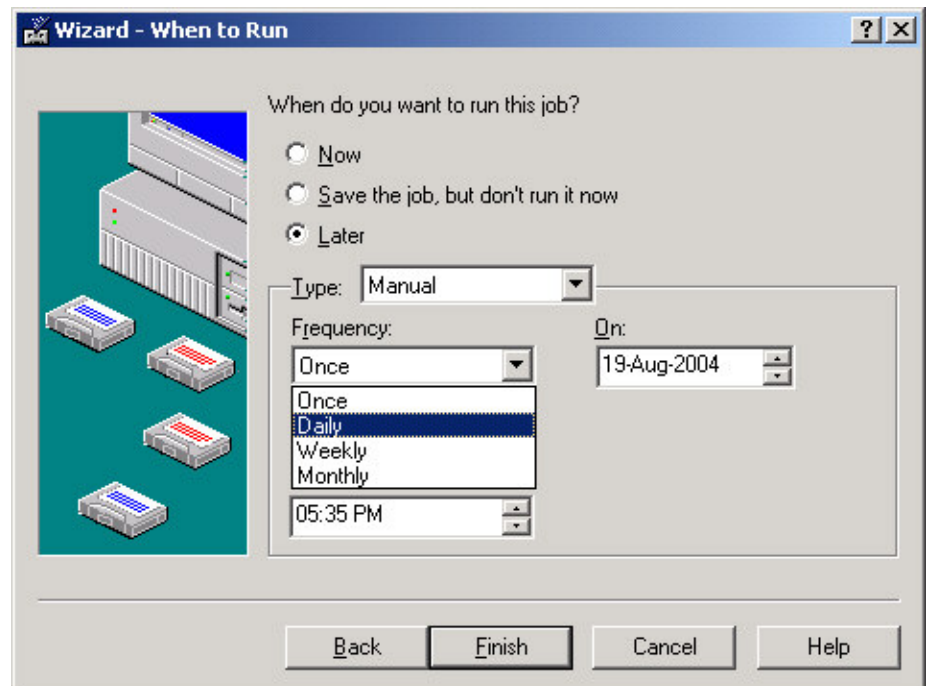
Backup Scheduling

In the "Best Practices" section it gives an example of how to do a "Simple 5 Day rotation" plan for your backups. To do this you would normally use Backup scheduling to perform these daily/weekly tasks. From the Tapeware Wizard shown earlier, you can select "Full Backup" (best to do this on Friday evening for example, as it will take longer to perform) and then "Incremental backups" at the end of every business day in between eg. Monday evening, Tuesday evening etc. Below you can see the options for performing backups and an explanation of the different types :-



Procedure for Sceduling Backups

- Select the type of backup you want from the Tapeware wizard ie. Backup specific, Backup all workstations etc.
- Select the method for the backup you chose (we suggest a weekly Full backup and a daily incremental backup).
- Select to perform this Backup "Later" when prompted.
- Select the time and how often you want the task performed :-



Congratulations! You have now setup a Backup Schedule to protect your data. Please remember to label your Tape media and swap them daily when first entering the office.

BEST PRACTICES

Confirm server settings after running Setup

- Check Event Viewer for messages associated with the installation or startup process.
- Set Event Viewer log size and wrap setting. Define your event log size and wrap (overwrite) setting to match your business and security requirements.

Confirm server security settings

- Review startup settings for services. Open Computer Management (Local). In the Services folder under Services and Applications, change the Startup Type of services so that services necessary for your server, and only those services, start automatically. Also, confirm that all services set to start automatically can do so without user intervention or multiple retries.
- Review open network ports. To help protect servers against attacks, close ports that are not necessary for the system to function properly. You can review ports with the netstat command. It is useful to also use an external port scanner and compare the results with the netstat results.
- Ensure that an appropriate firewall is in place. At least have the Firewall of your router enabled, but for higher security maybe additional protection is required.

Restrict physical access to computers

- Physical access to a server is a high security risk. Such access by an intruder could result in unauthorized data access or modification as well as installation of hardware or software designed to circumvent security. To maintain a secure environment, you must restrict physical access to all servers and network hardware.

Keep virus scanners up to date

- Virus scanners frequently identify infected files by scanning for a signature, which is a known component of a previously identified virus. The scanners keep these virus signatures in a signature file, which is usually stored on the local hard disk. Because new viruses are discovered frequently, this file should also be updated frequently for the virus scanner to easily identify all current viruses.

Keep security patches up to date

- Download the Microsoft Security updates and Service Packs on a regular basis.

Create a plan for performing regular backups

- Review and incorporate the best practices as listed in Chapter 10 “Tips, Techniques & strategies” of the Tapeware User Manual which can be found on the Tapeware CD. The “Simple 5 day rotation plan” is a good example of a well thought through Backup strategy. As part of this plan, you create separate media folders and backup jobs for each day of the week. You can also use separate tapes to create separate sets of backups for different weeks.

Keep the installation CD where you can easily find it

- It is important to have not only the installation CD, but also the PID and keys. If needed, you can start the computer from the CD and use the Recovery Console or Automated System Recovery.

Analyze performance results and establish a baseline

- Review logged data by graphing it using the System Monitor display or exporting it for printing. Compare the values against the counter thresholds to verify that resource usage or other activity is within acceptable limits. Set your baseline according to the level of performance that you consider satisfactory for your typical workload.

Acer Server Trust (Acer Server Management version 6.0)

- Make sure you monitor the hardware of your Server. The Altos G510 has many features to increase the system uptime, but you should monitor the Server to react before the Server fails due to a Hardware problem.

**FOR MORE
INFORMATION**

You will find more Information about the Acer Wireless Office Solution on the Acer EMEA websites. Please follow the link below and select your Country.

- <http://www.acer-euro.com/>

Detailed Information about Microsoft Windows Server 2003 can be found here:

- <http://www.microsoft.com/windowsserver2003/default.mspx>

The latest Acer Drivers and Utilities are available for download at:

- <http://support.acer-euro.com/drivers/downloads.html>