Archivist™

Digital Voice Logging Recorder
Models VLR-164/VLR-136/VLR-124/VLR-106

User's Guide

Edition 1.4

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Chapter 1: System Overview

The signals that our senses detect from the environment are called “analog”, signals such as temperature, sound and light. On the contrary, a computer can handle digital signals only. Therefore analog signals must be converted to digital signals (A/D conversion) before they can be processed by a computer, and digital signals must be converted to analog signals (D/A conversion) in order to interface with human beings. When an analog voice signal is digitized (converted to digital format via A/D conversion), it becomes so called “digital voice”.

Digital voice, as well as other kinds of computer data, consists of bits of “0” and “1”. It can be stored easily in a computer but may require much more storage space than other kind of data. For example, if the voice is digitized at 64 Kbps sampling rate with no compression, then 100MB of memory can store 3.47 hours of voice.

Many compression techniques have been invented to reduce the massive storage requirement of digital voice. Each technique has its own pros and cons, but very few achieve high compression rate without sacraficing the voice quality. The Archivist system uses state-of-the-art voice compression technique invented by Dallas Semiconductor to achieve a compression rate of either 4:1 or 8:1. The 4:1 compression rate is highly recommended because not only the storage capacity is quadrupled (100MB = 13.88 hours) but the characteristics of the voice is also preserved.

The design of a voice recording system is critical when communications must be recorded for legal or other reasons. Important design issues which must be addressed include how to preserve recordings accurately, how to store and retrieve recording efficiently, how to maintain system security, and how to reduce physical size yet still provide maximum recording and backup capacity. The Archivist voice logging recorder is built on our 10+ years of voice technology experience and designed with state-of-the-art components. Its features are:

System Features

*** Patented all-in-one case design (except VLR-106 & VLR-124)**
All Archivist systems except VLR-106 and VLR-124 are housed in compact, industrial strength metal cases with built-in TFT or DSTN displays. Most components, such as CPU card and voice card, are plug-in type. In VLR-164, storage devices, backup devices and power supplies are slided in on tracks and fixed inside the case. On the back of the case for the VLR-164 is a terminal panel which makes it easy to install and service a large system with many wires. Overall, the Archivist's case design is a major break through in terms of space saving, easy maintenance and easy installation.

*** Windows NT/2000/XP operating system**
The Archivist software works under the powerful Windows NT/ 2000/XP operating systems and provides user friendly interface. It supports system networking so that remote NetPlay terminals can be used to retrieve voice records.

*** Cyclic hard disk recording method**
The Archivist uses hard disk for primary storage, and DVD-RAM disk or DAT tape for backup storage. Since the primary storage is used in a cyclic manner, backup storage may not be necessary in some applications where backup retention period is short. For example, when the system is equipped with a 40 GB hard disk, the primary storage is about 5320 channel-hours before new data over-writes old data. If records older than 5320 channel-hours need not be stored, then backup storage is not necessary.

*** Two storage devices can be used in series or in parallel**
Up to two hard disks can be installed in the Archivist, and they can be used either in series or in parallel. When used in series, the disk capacities are added together. When used in parallel (by way of mirror box), data will be written to both hard disks to protect the system from data loss due to hard disk failures.

*** Use DVD-RAM or DAT for backup**
The search/access time of DVD-RAM is much faster than DAT, but the cost is higher. Current capacity of DVD-RAM is 9.4 GB (double size). DAT tape capacity is 12 GB (with DDS-3 drive) per tape.

*** Serial and parallel operation of backup devices**
Two DVD-RAM drives or two DAT drives can be used in series for combined capacity.

*** Maximum capacity is 64 channels**
The Archivist is available in four configurations: VLR-164, VLR-136, VLR-124 and VLR-106. The maximum capacity for these systems are 64, 36, 24 and 6 channels respectively. However, one channel must be dedicated for playback purpose unless NetPlay terminals are used to access voice records over local area network (LAN).

*** Real-time on-line channel monitoring**
The Archivist allows live monitoring of any channel via the Replay Channel. However, since the Replay Channel is also used to play voice records, both operations can not proceed at the same time.

*** Each backup disk or tape has its own archival information**
When the data on a backup media is no longer needed, the backup media can be re-used. In order to facilitate backup organization, each backup media will be recorded with a unique serial number, the date of first use, the number of times it has been re-used and other basic information.

*** Records are saved with date, time and other information**
Every voice record is saved with channel number, date, time, length, dial-out number (if any) and Caller ID (if any). Among them, channel number, date, time, dial-out number and caller ID can be used as search keys to retrieve records.

*** Search and retrieve recordings at any time without affecting the operation of the system**
Whether the record is on the hard disk or on the backup device, it can be retrieved at any time without affecting the system operation.

*** Individual record can be selected for secondary backup or deletion**
Any individual record can be selected, along with notes, for a secondary backup to devices such as a floppy disk and etc.

*** Flexible working hours**
Up to three different working hour ranges can be configured for the system. The system will not record when the time is out of the ranges, but other operations are still functional.

*** Password protection at different levels**
In order to ensure system security, the Archivist employs different passwords at different levels.

*** Fast search and fast play functions**
When searching for a particular record, the user can use the record's Start Time/Channel Number/Dialed Number/Caller ID (one or more of the above) as the search key. After a brief moment, the system will list all records matching the key. The desired record can be easily selected and played by using commands such as fast forward, rewind, move up and move down.

*** Channel grouping for greater flexibility**
Under certain circumstances, it may be desirable to partition the channels into different task groups. The Archivist allows for such grouping with different names, passwords, and backup devices.

*** Independent channel configuration**
Each channel can be configured independently with its own User Name, Extension Number, Activation Method and etc.

*** Main screen menu shows channel status and storage usage**
The Archivist displays the status of all channels and the storage usage (percentage used) on the main screen menu, making it easy for the system manager to monitor the operation.

*** Automatic self-test on regular basis**
As an intelligent recording system, the Archivist is capable of automatic self-testing on a regular basis. If any problem or abnormality is found, the system will generate an alarm for the system manager.

*** Screen warning, verbal alarm, and optional remote notify**
Based on the cause of an alarm, the system will report in different manners. If the problem is small, only a warning will be displayed on the screen. Otherwise a verbal warning will be sent to the internal speaker. If the system is optionally equipped for remote notification, then the warning will be sent through a phone call.

*** Voice (VOX) activation or loop voltage start**
The Archivist can be connected to a variety of communications circuits such as telephone lines, extension lines, ring-down direct lines and radio channels. In order to adapt to different electrical interfaces, each channel can be configured as voice activation (VOX) or loop voltage start on an individual basis.

*** System self-test capability**
The Archivist can perform energy analysis on each channel and help determine whether the problem comes from the system itself or from the communications circuits that it is connected to. This unique feature helps the service technician to trouble-shoot the system quickly and easily without using bulky test equipment.

*** System expansion capability**
Although the maximum capacity of a single Archivist unit is 64 channels (VLR-164), systems of larger capacity can be built by networking multiple VLR-164 units together via LAN.

System Specifications

Working Platform	
Hardware	VLR-164: Industrial PC with TFT VGA display, all in one case VLR-136: Industrial PC with TFT VGA display, all in one case VLR-124: Rack mounted or PC type with external VGA display VLR-106: Compact PC with external VGA display
Operating System	Windows NT/2000/XP
Telephone Interface	
Type	Analog telephone line
Connection	Tip and ring in parallel
Input Impedence	> 20K Ohm
Networking	
Availability	VLR-164, VLR-136, VLR-124 and VLR-106
Interface	Peer-to-peer, 10BASE-T
Voice Recording	
Max. No. of Channels	VLR-164: 63, plus one channel used for replay speaker VLR-136: 35, plus one channel used for replay speaker VLR-124: 23, plus one channel used for replay speaker VLR-106: 5, plus one channel used for replay speaker
Volume Level	-40 dbm to +9 dbm, AGC > 40 dB
Compression Rate	4:1 (default) or 8:1 u-law PCM
Storage Capacity	5320 channel-hours (40 GB hard disk), expandable
Activation	Voice (VOX), loop voltage
Storage Equipment	
Storage Devices	hard disk (40 GB or bigger)
Backup Devices	DVD_RAM disk (9.4 GB double size) DAT tape (2 GB to 12 GB) Removable hard disk
Voice Playback	
Playback Channel	Channel #1 is always dedicated as the Replay Channel
Monitoring	Live monitoring on any channel via the Replay Channel
Output Device	speaker, earphone jack, re-record jack
System Alarm	
Warning Types	Voice card not responding Backup device is full Abnormal activity Max. recording length exceeded on a certain channel
Warning Method	Screen display Verbal message from speaker Phone call to remote location (via specially equipped channel #2)
Physical Dimensions	
VLR-164	W434 x H530 x D450 (mm)
VLR-136	W430 x H320 x D335 (mm)
VLR-124	W430 x H153 x D408 (mm)
VLR-106	W300 x H90 x D320 (mm)
Environment	
Temperature	Operation: 5^{O}C to 40^{O}C, Storage: -20^{O}C to 60^{O}C
Humidity	80% max.
Power Supply	
AC Power Supply	90 ~ 130 or 180 ~ 240 VAC, 47 ~ 63 Hz < 400W UPS (Un-interruptable Power Supply) required

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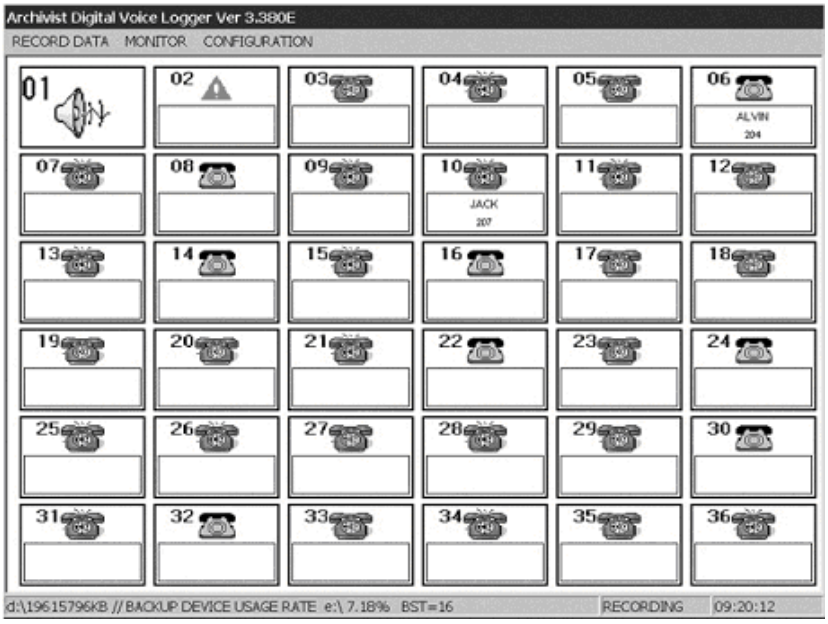
Chapter 2: Operation Overview

Starting System Operation

To start the system operation, double click on the VLR icon. A Main Screen similar to the following should appear shortly.



: Channel not installed

: Replay Channel

: Alarm Channel (optional)

: Record Channel in Standby Mode

: Record Channel in Record Mode

: Record Channel in Sleep Mode

: Stopped Channel

Default Configuration

By default, channel #1 is set as a Replay Channel and all other channels as Record Channels.

Replay Channel
The Replay Channel is used for voice replay or live monitoring. It can not be used for voice recording. Since system speaker is internally or, in the case of VLR-106 and PC type VLR-124, externally connected to the Replay Channel in order for it to work, the default setting (channel #1) should not be changed.

Alarm Channel (optional)
The Alarm Channel is used for alarm notification only. It can not be re-configured and used for voice recording. It will call and notify the system manager when an abnormal condition arises in the system. In order to set up an Alarm Channel, a special voice board (with a low impedence channel #2) must be used. Do not change the default setting (channel #2) for the Alarm Channel.

Record Channel in Standby Mode
In Standby mode, a record channel is waiting for the activation signal and ready to record.

Record Channel in Record Mode
In Record mode, a record channel is recording voice.

Record Channel in Sleep Mode
In Sleep mode, a record channel is sleeping and will not respond to any activation signal. A record channel will go into Sleep Mode when the current time is out of the Work Hour ranges.

Stopped Channel
A Stopped Channel is a channel which is installed but configured to be disabled for some reason. For example, a broken channel may have to be stopped before it can be serviced.

Backup Device Usage Rate
It shows the amount of used space for the backup device. When the usage rate is near 100%, the system manager should be prepared to replace it with a new one.

System Shutdown

To shut down the system, click on Configuration/Close and enter the System Password when prompted. Do not turn off the system before it is properly shut down, or some record data may be lost.

The system should be equipped with an UPS (Uninterruptable Power Supply) so that it can be properly shut down when power outages occur, otherwise some record data may be lost.

Chapter 3: The Record Data Command

Starting The Record Data Command

The Record Data Command allows you to retrieve and replay record data. You may use the following search keys to retrieve record data:

* Back Device
* Channel Number
* Time Period
* Dialed Digits
* Caller ID

After record data is retrieved, you may

* Replay it
* Delete it
* Add or modify an annotation
* Save it again on the same or another backup device

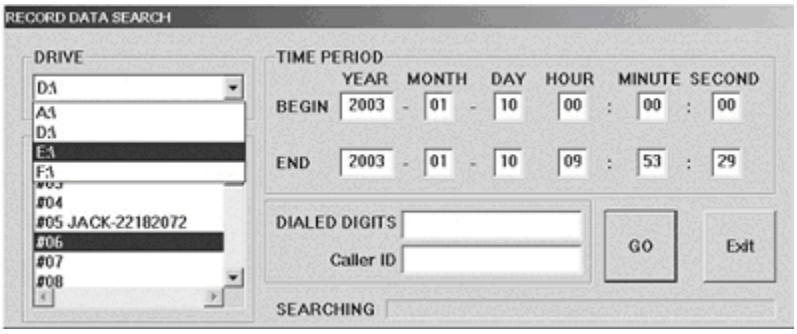
To enter the Record Data Command, click on its title. The following menu will pop up.

Password
Enter the Group Password or the System Password. The default password for Group "all" (which includes all channels) is "111111". If you enter the System Password here then you can delete records, otherwise you can not.

Group Name
Select the target Group here. There is no default group, so you must create at least one group first.

If the password is entered correctly, the following menu will pop up.

Record Data/Record Data Search



Drive
Select which disk drive to retrieve the record data from.

Channel
Select which channel(s) to include. You may select one, several or all channels. To select several channels, hold down the <Ctrl> key and click on the target channels. To select all channels, scoll down to the end of list and select "all". If you are not sure which channels should be included, select all channels.

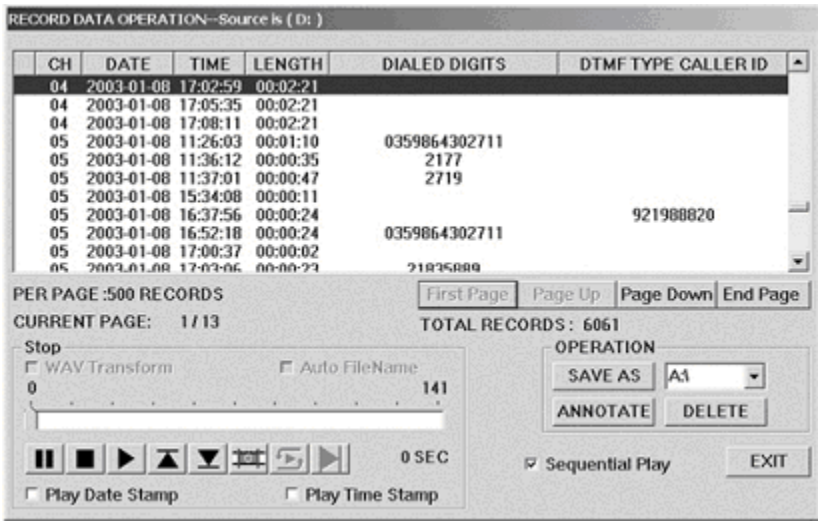
Time Period
Enter the time period to include. If you are not sure what time period to include, leave it blank. A blank time period selects all record data regardless of time. To narrow the search range, fill in as much information as possible and leave uncertain fields blank.

Dialed Digits
Touch tone digits dialed at the beginning, in the middle or at the end of the call, by the caller or by the callee, are saved as part of the record. Enter part of or the entire dialed digits (if any) here to use as search keyword. For example, the keyword "1560" can be used to find "721560" and "8315607", but not "710560".

Caller ID
Caller ID is usually used to search for inbound calls with caller ID (DTMF type only). Enter the caller's phone number into this field (if any).

After all search keys are entered, click "OK" to continue. After a few moments of searching, the following menu will pop up.

Record Data/Record Data Operation



Source
Source indicates which device the data was retrieved from.

Channel
Channel indicates which channel the data was recorded on.

Date
Date indicates the recording date in YYYY.MM.DD format.

Time
Time indicates the time when recording started.

Length
Length indicates the recording length in HH:MM:SS format.

Dialed Digits
Dialed Digits shows the touch tone digits dialed during the call.

Caller ID
DTMF Type Caller ID shows the telephone numbers of the caller.

First Page, Page Up, Page Down, End Page
Each page contains up to 500 records. If there are more than one page of data, use these commands to move among pages.

Replay Commands

⏸	Pause. Click once to pause, click again to resume.
■	Stop.
▶	Play.
⏫	Move up one record.
⏬	Move down one record.

Mark Section

You can mark a section and play it. Initially, the Mark Section button will display “0” in the middle. When the record is being played, click the Mark Section button to mark the begin point. The Mark Section button will now display “1”. Click the Mark Section Icon again to mark the end point. The Mark Section Icon will now display “2”. If no end point is marked, the end of the record will be the end point. You can now click the Section Play button to start/stop Section Play.

Section Play (play the marked section)

Section Repeat (play the marked section repeatedly)

This icon will be replaced by the Section Stop icon when the section repeat is in operation.

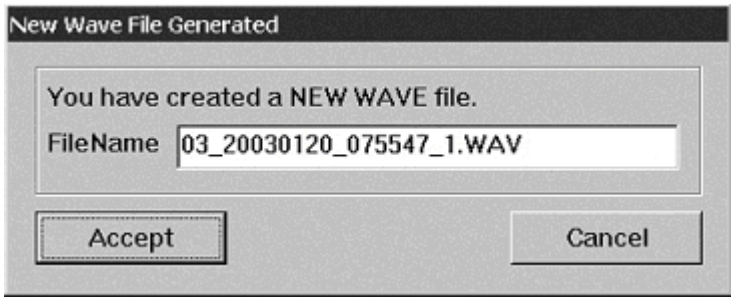
Section Stop (stop the Section Repeat)

This icon will be replaced by the Section Repeat icon when the section repeat is stopped.

WAV Transform

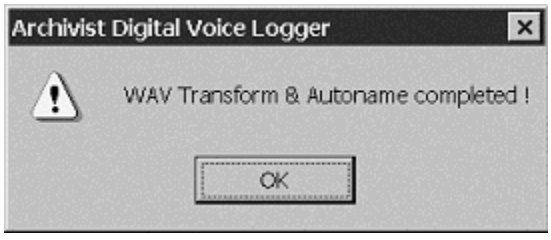
To enable the WAV Transform procedure, check this box before the playback (requires a sound card).

When the WAV Transform procedure is completed successfully, a suggested filename will be created automatically as shown. You may change the filename if you like. Then click Accept to continue.



Auto FileName

Check this box to enable system Autoname for WAV Transform, so that multiple recordings can be selected for WAV conversion. Filename will be automatically generated by the system after each WAV Transform is completed.



Note:
1. A sound card is required to use the WAV Transform function.
2. All the converted WAV files will be stored on C:\Wav.

Sequential Play
If this option is checked, the replay will sequence through records to the last entry, or until the replay is manually stopped.

Play Date Stamp
If this option is checked, the system will play the date of the record.

Save As
If this option is checked, the system will play the time of the record.

Save As
Save the current record as another record.

Delete
Delete the current record. This command is available only if the System Password was entered previously instead of the Group Password

Annotate
Add or modify a text annotation to the current record. A record will be marked with "*" if it is annotated.

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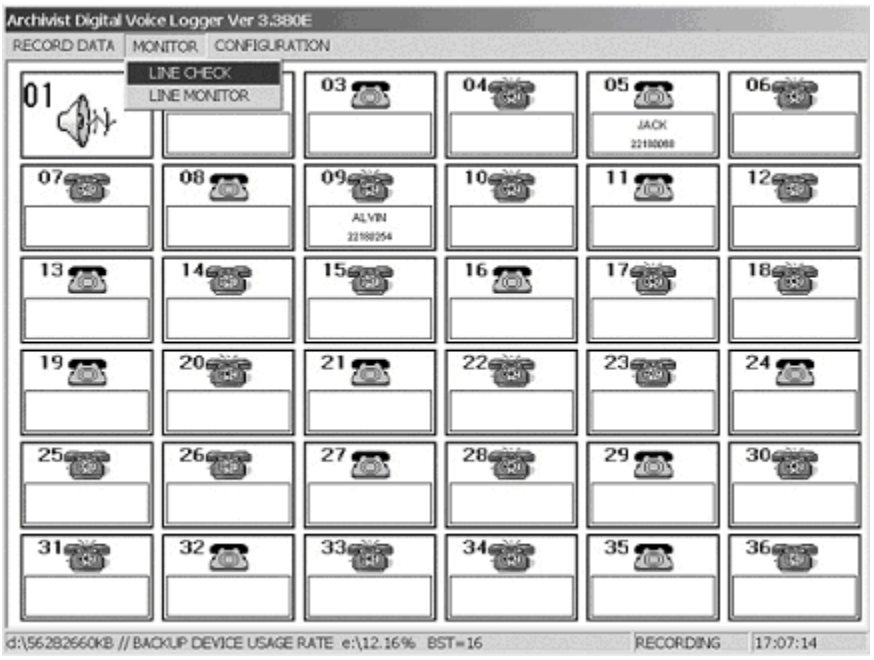
Chapter 4: The Monitor Command

Starting The Monitor Command

The monitor command allows you to

* Monitor line energy on any channel
* Monitor live conversation on any channel

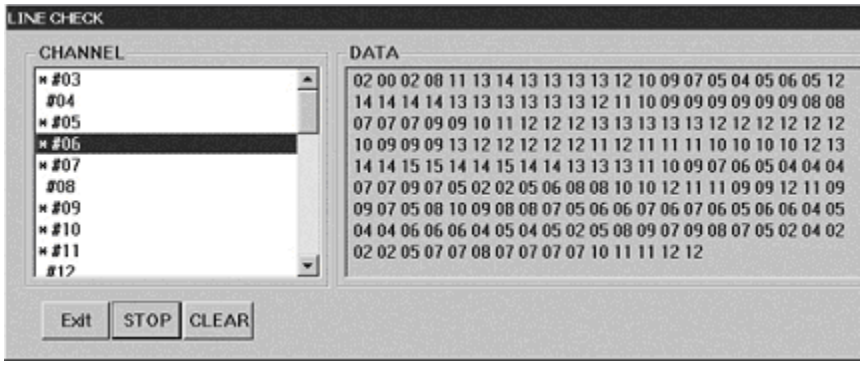
To enter the Monitor Command, click on its title. The following screen will appear.



Select “Line Check” or “Line Monitor” by clicking on the corresponding title. You will be asked to enter the System Password first.

Monitor/Line Check

Line Check is usually used by service technicians to examine line energy and condition. End users and system managers do not need to understand the meaning of the data. However, system managers may be requested to perform Line Check and gather data to help diagnose system faults when service technicians are not present.



Data Window
This window displays the energy data in numeric form.

Channel
Select the channel you want to monitor. One and only one channel must be selected. Those channels currently in recording are marked by "*".

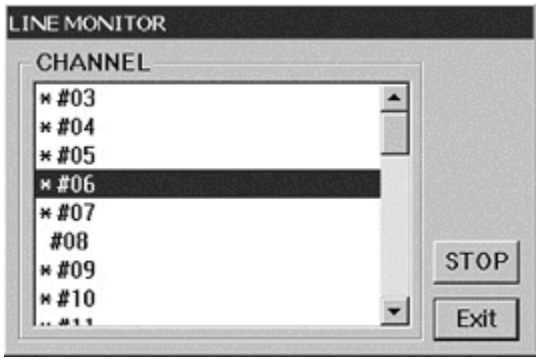
Start
Start the monitoring process.

Clear
Clear the Data Window.

Stop
After the monitoring starts, the Start button will become the Stop button which can be used to stop the monitoring process.

Monitor/Line Monitor

Line Monitor can be used to monitor live phone conversation as it is happening. Using Line Monitor does not affect the normal recording operation at all, and is not detectable by the persons being monitored.



Channel
Select the channel you want to monitor. One and only one channel must be selected. Those channels currently in recording (having conversation) are marked by "*".

Start
Start the monitoring process.

Stop
After the monitoring starts, the Start button will become the Stop button which can be used to stop the monitoring process.

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Chapter 5: The Configure Command

The Configure Command allows you to display and/or configure the following system configurations:

System Configure

* **Notify**
  Configure: Notify Tel No., Notification Period and Speaker.
* **Channel**
  Configure: User Name, Tel No., Start Method and Usage.
* **Operation**
  Configure: Work Hours and Minimum/Maximum Record Length.
* **Backup**
  Configure: Daily Backup and Periodic Backup.
* **Disk Information**
  Display: Serial No., First Usage Date, Re-use Times and etc.
* **Group**
  Configure: Add, Modify and Delete.
* **System Password**
  Configure: System Password

Engineer Configure

* **Voice Card**
  Display: Card Number, IRQ and Memory Location.
* **Storage Device**
  Display: Storage Device(s) usage information.
* **Backup Device**
  Display: Backup Device(s) usage information.
* **Record & Play**
  Configure: Record/Play Gain, Record Mode, Start/Stop Threshold, Stop Delay and Detect Dial-Out Number.
* **Dialing**
  Configure: Dialing Mode, Dialing Delay, Set Prefix and Loudness.
* **Engineer Password**
  Configure: Engineer Password

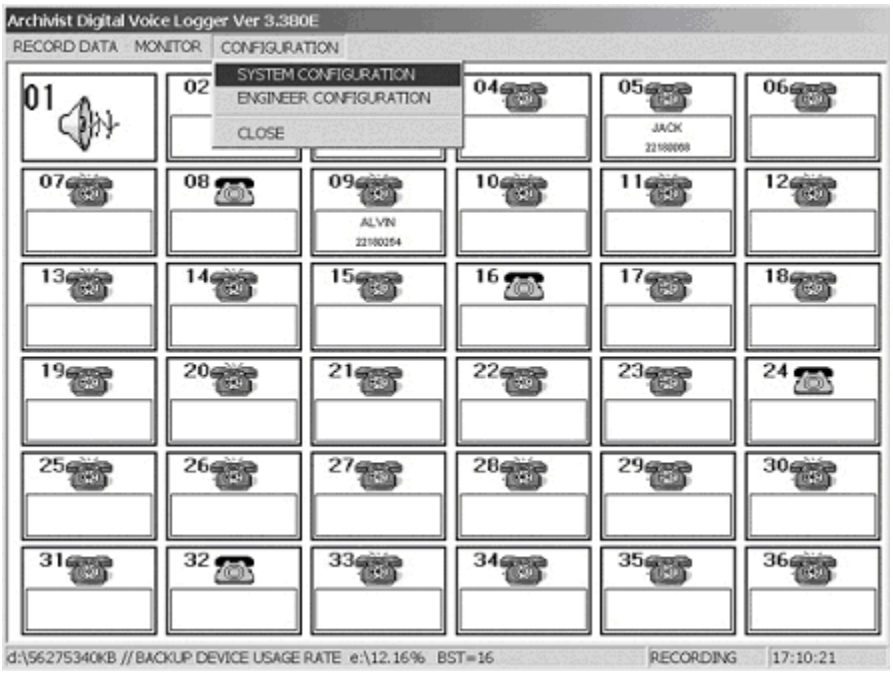
To enter the Configure Command, click on its title. The following screen will appear.

Starting The Configure Command

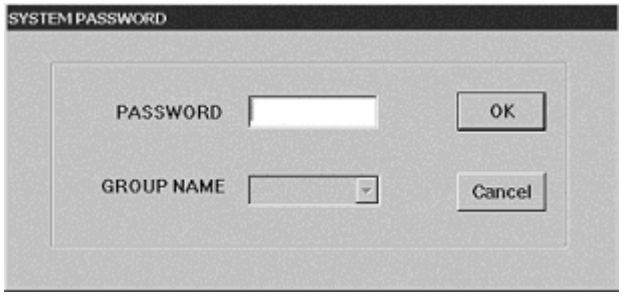
There are two Configure menus: the Engineer Configure and the System Configure. Each Configure has its own password.

The Engineer Configure involves low level hardware configuration. It is usually done by service technicians at the time of system installation and need not be changed during normal operation.

The System Configure involves operation options and channel configurations. It is usually done by the system manager whenever needed.



Select “Engineer Configure” or “System Configure” by clicking on the corresponding title. The following menu will appear:



Enter the correct Password to continue. The default Engineer Password is “999999”. The default System Password is “111111”.

Configure/System Configure/Notify

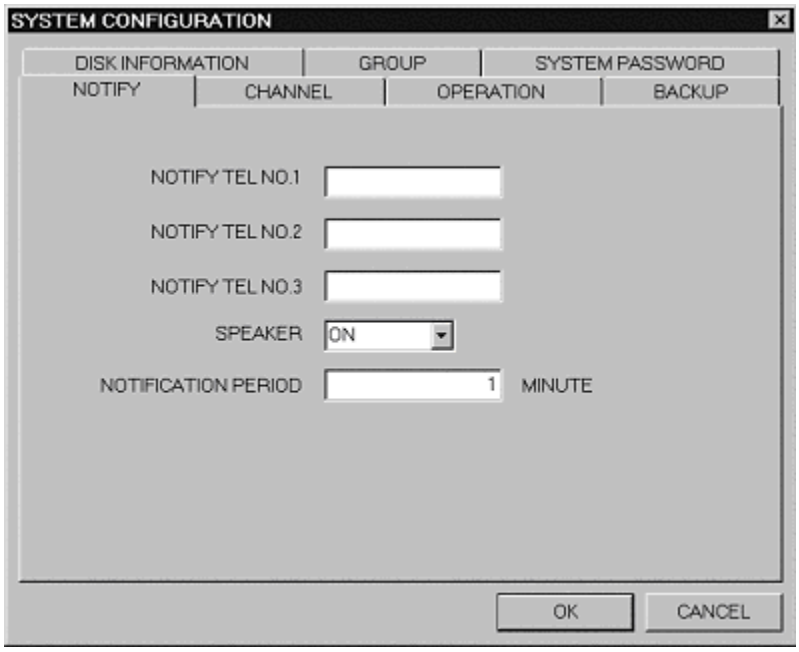
There are two methods to notify the system manager when an alarming situation arises in the system: the Phone Notification and the Speaker Notification.

The Phone Notification uses the Alarm Channel to dial a phone number and play a message to notify the system manager. It will keep notifying at preset intervals until the problem is taken care of.

A channel must be dedicated as the Alarm Channel in order for the Phone Notification to work. In order to set up an Alarm Channel, a special version of the voice board (with a low impedence channel) must be used. See Configure/ System Configure/Channel for more details.

The Speaker Notification plays the notification message via the replay speaker once every 10 seconds until the problem is taken care of.

Both notification methods can be turned on or off independently.



Notify Tel No.
Enter the phone numbers to call and notify. These are usually the phone numbers for the system manager. Up to three different numbers can be entered.

Speaker
Select ON or OFF. If ON is selected, the system will play the alarming message once every 10 seconds until the problem is taken care of. This operation is totally independent of the phone notification.

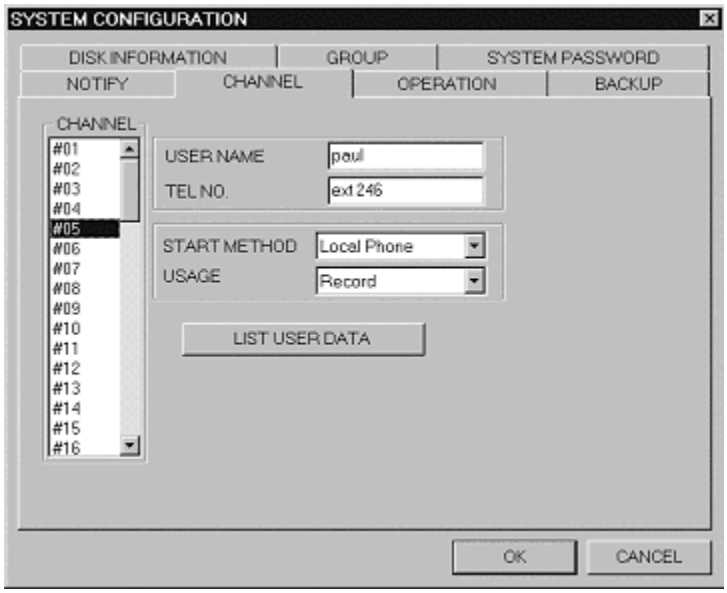
Notification Period
Enter how long the system should wait before it tries to notify again. The system will keep notifying until the problem is taken care of.

Alarming Situations

The following situation is considered to be alarming situations:

1. When the backup device is nearly full.

Configure/System Configure/Channel



Channel
Select the target channel to configure.

User Name
Enter the user's name for your own reference, and it will be shown in the main screen.

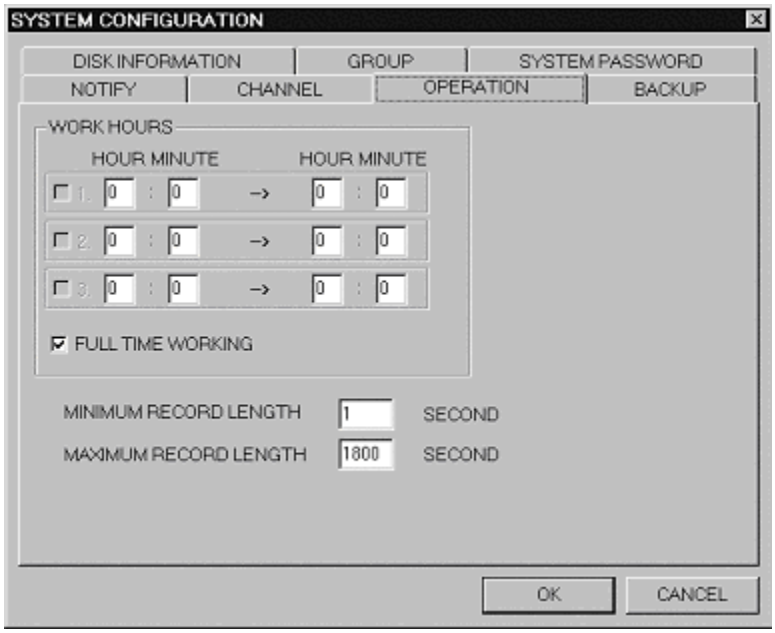
Tel No.
Enter the user's phone number for your own reference, and it will be shown in the main screen.

Start Method
Select Local Phone or Energy. The Start Method must be selected according to how the system is connected to the phone lines, or the system may not work properly.

Usage
Select Record, Play, Alarm or No Use. Channel #1 is usually configured as the Replay Channel in order to replay record data. Channel #2 may be set as the Alarm Channel so that the system manager will be notified of any alarming situation or problems. However, in order to set up an Alarm Channel, a special voice board (with a low impedence channel #2) must be used. Other channels should be configured as Record Channels. Set a channel to No Use to take it out of service temporarily.

List User Data
Click here to display a list of channels with user names and phone numbers. It allows you to quickly find a user name for a certain channel, the phone number of a user, and etc.

Configure/System Configure/Work Hours



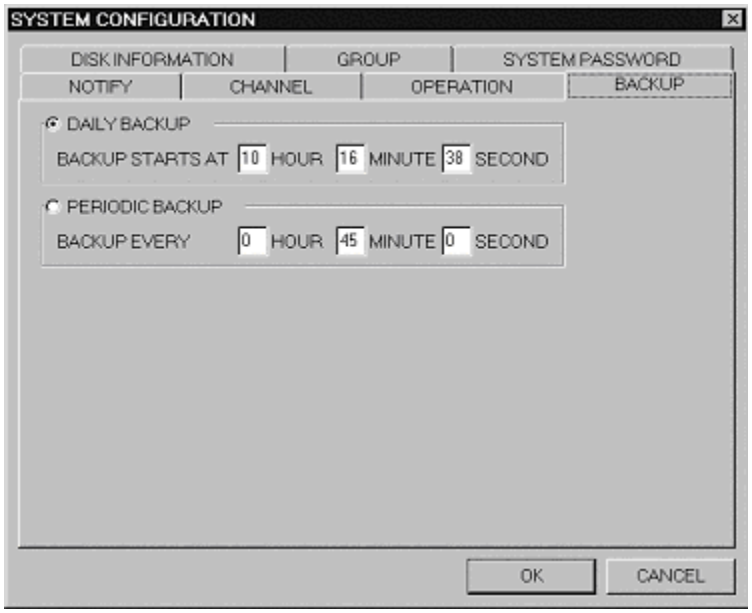
Work Hours
First un-check the Full Time Working box in order to enter up to three ranges of Work Hours in 24-hour format. In addition to entering time, you also need to check its box in order to enable a range. The default range is Full Time Working, which covers the whole day.

Minimum Record Length
Any record shorter than the Minimum Record Length will not be saved in the system. Default = 1 second.

Maximum Record Length
Any record longer than the Maximum Record Length will be cut to the Maximum Record Length and the remainder saved as another record. Default = 1800 seconds.

Configure/System Configure/Backup

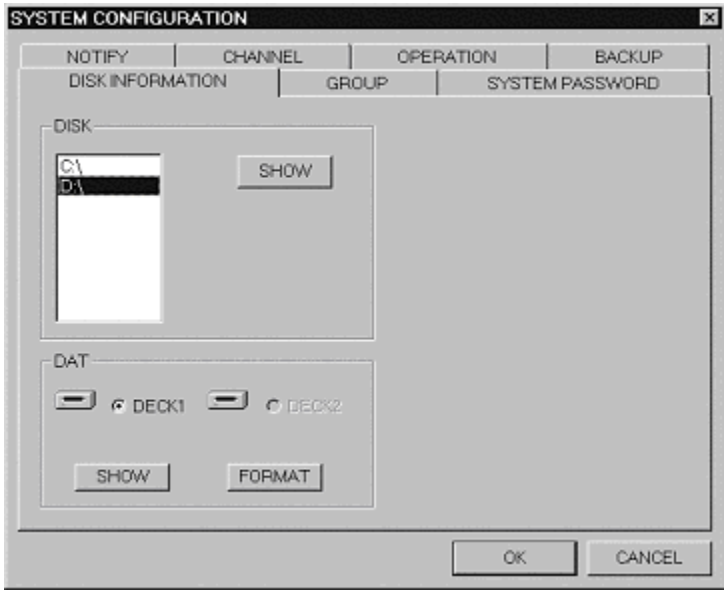
The system offers two schemes of automatic backup at regular intervals. The first one is Daily Backup which happens once a day at preset time. The other one is Instant Backup which can happen several times a days at preset intervals.



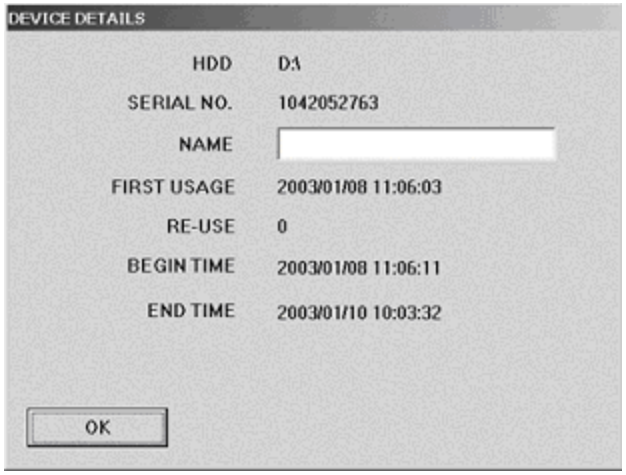
Daily Backup
Enter the Daily Backup time (in 24-hour format) here. If Daily Backup is selected, Instant Backup will be disabled automatically.

Periodic Backup
Enter the Periodic Backup interval (in 24-hour format) here. The Periodic Backup interval is the time period that backup should take place. The Periodic Backup interval should not be too short or the life of the backup device will be shortened. If Periodic Backup is selected, Daily Backup will be disabled automatically.

Configure/System Configure/Disk Information



This command is usually used to check the status of a backup disk. To display the disk information, highlight the target disk and click "SHOW". The following information will be displayed:



Name
You may enter a Name for your own reference.

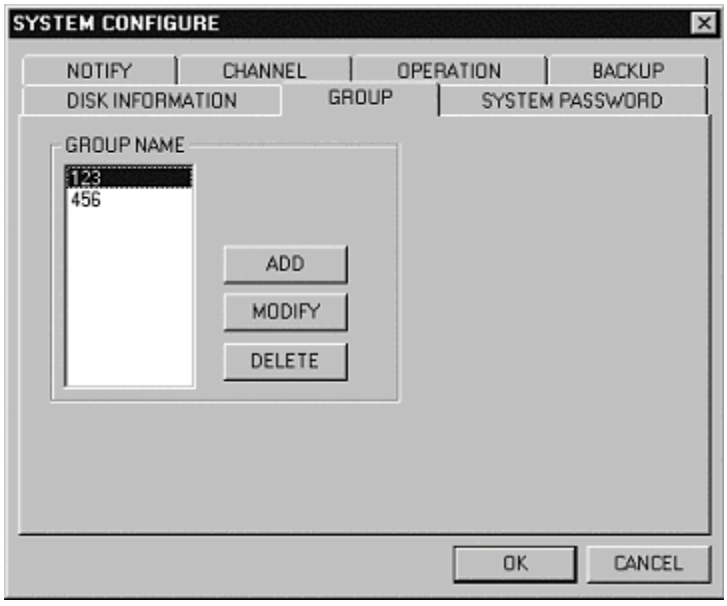
First Usage
Date and time of the first usage.

Re Use
How many times this disk has been re-used.

Begin Time
Date and time of the oldest record on this disk.

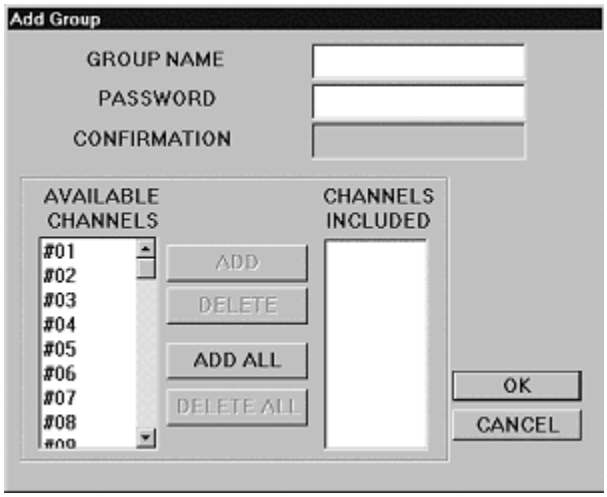
End Time
Date and time of the newest record on this disk.

Configure/System Configure/Group



Add

Click “Add” to add a new group. The following menu will appear.



First enter Group Name, Password and Confirmation (re-type Password one more time). Then select channels from the Available Channels list and click Add to include them. If you want to take out some channels from the Channels Included list, select them and click on Delete.

Modify

Highlight a group and click “Modify” to modify it. The operation is similar to the Add operation.

Delete

Highlight a group and click “Delete” to delete it.

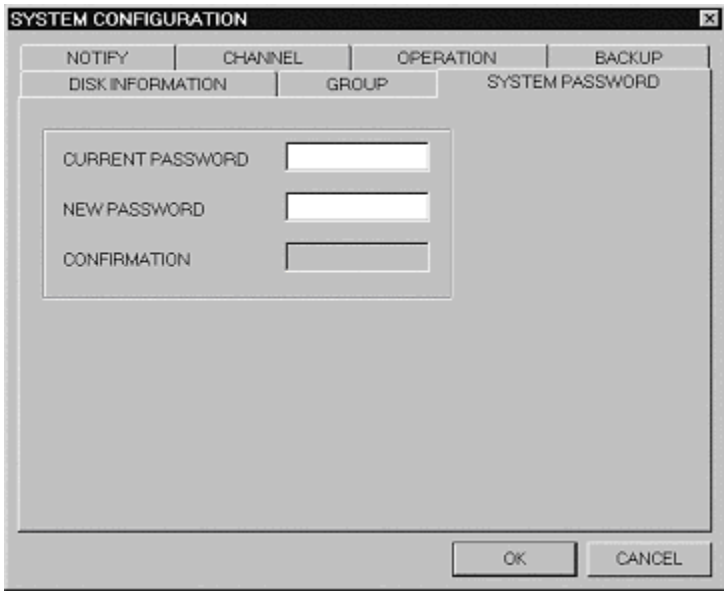
Configure/System Configure/System Password

The default System Password is "111111".

You may use a combination of any letter, number or symbol on the keyboard. Note that letters are case-sensitive.

If desired, the System Password and the Engineer Password can be the same.

The System Password can be used in lieu of any Group Password, but not vice versa.

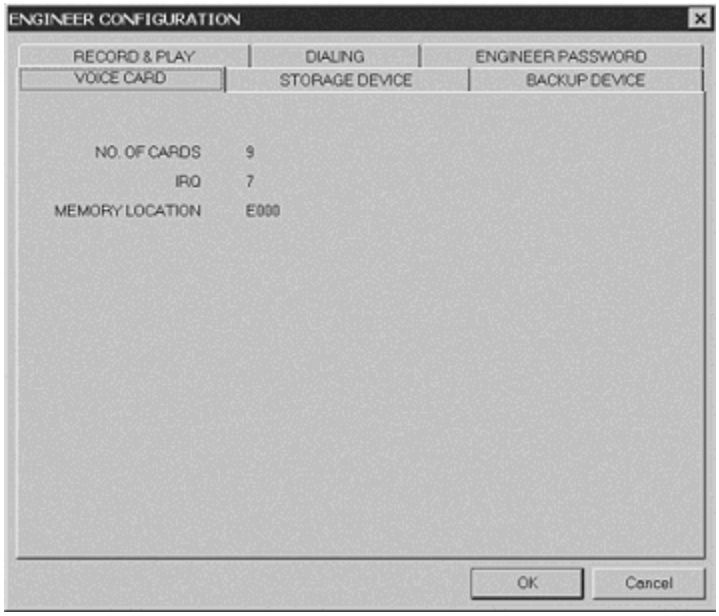


Current Password
Enter the current System Password.

New Password
Enter the new System Password, 14 digits maximum.

Confirmation
Enter the new System Password again to confirm it.

Configure/Engineer Configure/ Voice Card



This menu displays the following information:

No. of Cards
Number of voice cards installed in the system.

IRQ
The IRQ setting used by the voice cards. All cards in the same system must use the same IRQ setting.

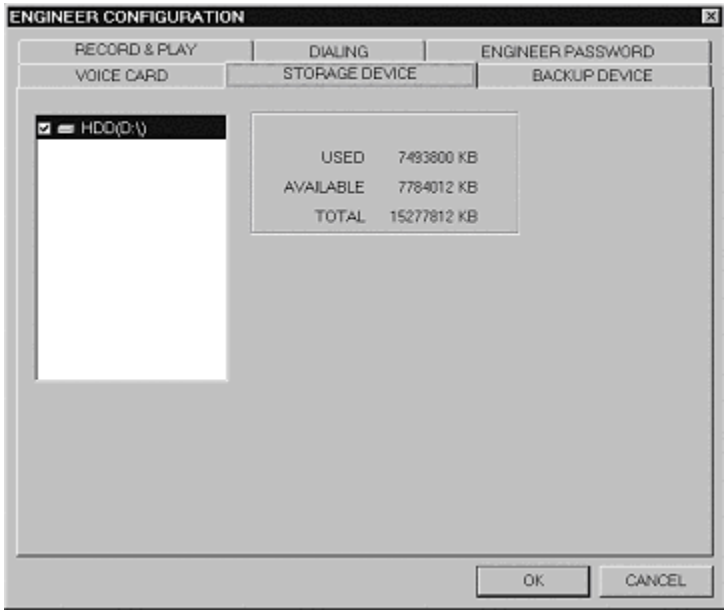
Memory Location
The Memory Location used by the voice cards to exchange data with the system CPU. All cards in the same system must use the same Memory Location.

Please refer to the Hardware Configuration section for more information on how to change the above configurations.

Configure/Engineer Configure/Storage Device

All channels in the system share the same storage device(s). If there are more than one storage devices, they will used serially, i.e. when the first device becomes full, the next device is used automatically.

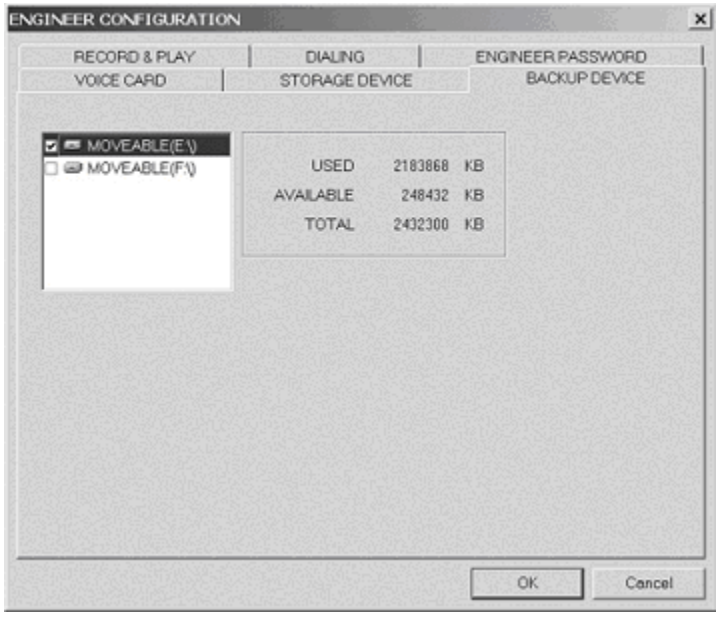
Only hard drive partitions are considered storage devices by the system. Also, partition C: is used to store system files only and not considered a storage device.



Click on a storage device to display its usage information.

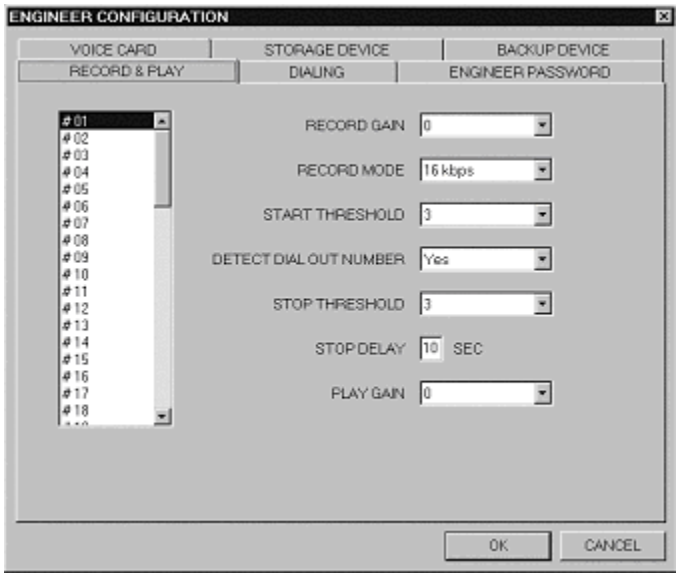
Configure/Engineer Configure/Backup Device

All channels in the system shares the same backup device(s). If there are more than one backup devices, they will be used serially, i.e. when the first device becomes full, the next device is used automatically.



Click on a backup device to display its usage information.

Configure/Engineer Configure/Record & Play



First, select the target channel for configuration.

Record Gain
The Record Gain determines the recording level. A higher Gain translates to a higher level. Range = -10 ~ +10. Default = 0.

Record Mode
Select 8 or 16 Kbps. 16 Kbps sounds better but consumes twice as much memory as 8 Kbps. Default = 16 Kbps.

Start Threshold
If Start Method is set to “Energy”, recording will start when sound level reaches beyond Start Threshold. Range = 0 ~ 21. Default = 3.

Detect Dial Out Number
The Dial Out Number is the string of touch tones entered at any time during the call. It can be detected/saved and used as a search key to find the record data later. Default = yes.

Stop Threshold
If Start Method is set to “Energy”, recording will stop when sound level drops below Stop Threshold for a duration longer than Stop Delay. The Stop Threshold is often set to the same value as the Start Threshold. Range = 0 ~ 21. Default = 3.

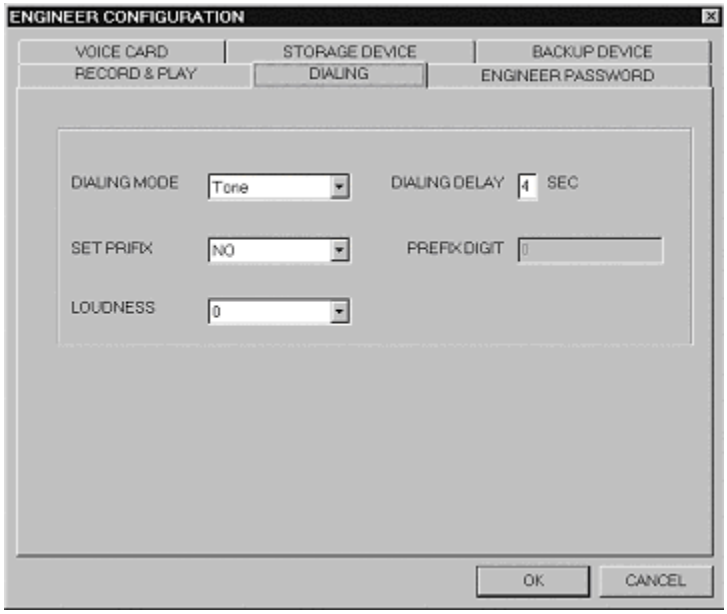
Stop Delay
See Stop Threshold for definition. Range = 0 ~ 99. Default = 3.

Play Gain
The Play Gain determines the replay level. A higher Gain translates to a higher level. Range = -10 ~ +10. Default = 0.

Configure/Engineer Configure/Dialing

The Dialing menu is used solely by the Alarm Channel which is the only channel in the system that can dial a number. The number to dial and notify is configured in the Configure/System Configure/Notify menu.

In order to set up an Alarm Channel, a special version of the voice board (with a low impedence channel) must be used.



Dialing Mode
Select Tone or Pulse. Default = Tone.

Dialing Delay
After going on-hook, the Alarm Channel waits a Dialing Delay period before it starts dialing. It's fixed at 4 seconds.

Set Prefix
If a prefix must be dialed before dialing the phone number, select YES. Otherwise, select NO.

Prefix Digit
The Prefix Digit (can be a string of digits) will be dialed first if Set Prefix is set to YES.

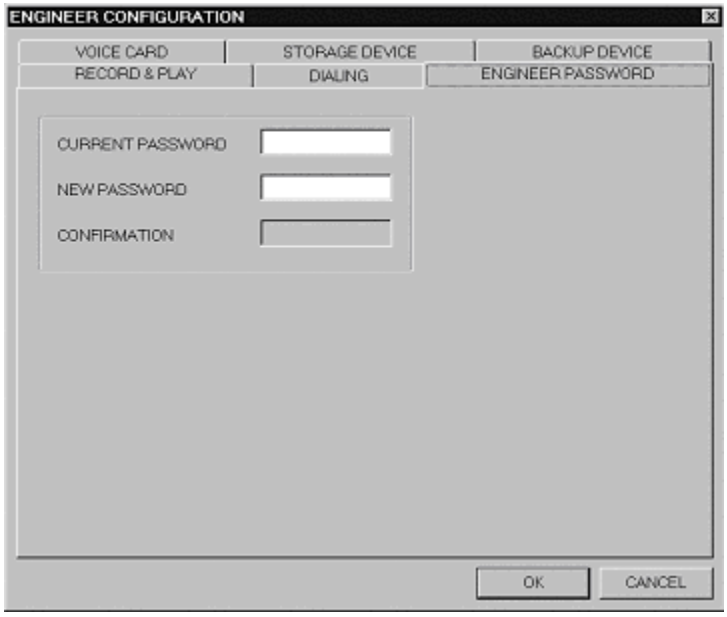
Loudness
The Loudness determines the alarm message loudness when calling. It's fixed at -2 for optimal result.

Configure/Engineer
Configure/Engineer Password

The default Engineer Password is "999999".

You may use a combination of any letter, number or symbol on the keyboard. Note that letters are case-sensitive.

If desired, the Engineer Password and the System Password can be the same.



Current Password
Enter the current Engineer Password.

New Password
Enter the new Engineer Password, 14 digits maximum.

Confirmation
Enter the new Engineer Password again to confirm it.

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Chapter 6: System Maintenance

Maintenance Procedures

Follow these procedures to properly maintain the Archivist system:

1. The system should be protected from power outages by a UPS (Uninterruptable Power Supply) of proper capacity. When a power outage occurs, the system should be shut down with normal shut down procedures before the UPS loses all its power. Otherwise some records may be lost or incorrectly stored.

2. Do not move the system when it is in operation.

3. Do not block the cooling fans of the system or put the system too close to a wall. Always leave enough room behind the system to allow good ventilation.

4. The system hard disk(s) needs to be scanned for errors and de-fragmented on a regular basis. The Windows utility programs SCANDISK and DEFRAG can be used for this purpose.

5. The system should be put in a clean environment to minimize the amount of dust going into the system.

6. The system's hard disk(s) and switching power supply should be replaced once every 3 to 5 years to assure reliable operation.

7. The cooling fans should be replaced when they are noticeablely weaker than normal.

8. It is very important to clean the DVD-RAM drive and DAT drive regularly. If they are used daily, the DAT drive should be cleaned once every two days, and the DVD-RAM drive once a month.

To clean the drive, insert a DAT cleaning tape or a DVD-RAM cleaning disk into the drive. In about one minute the cleaning tape or disk will eject itself and the cleaning is done. This procedure can be repeated several times to ensure thorough cleaning.

Avoid cleaning the drive shortly before or when the system is doing backup operation, or the system will display an error message.

9. Store DAT tapes and DVD-RAM disks in a cool, dry area free of dust, high temperature, high humidity and strong magnetic field.

System Rebuild Procedures

If the system crashes by itself, or is turned off without following the shutdown procedure, record data on the hard disk(s) need to be rebuilt or they may be lost. Follow these steps to rebuild the system:

1. Click “Start” > “Programs” > “Archivist” > “Rebuild Index” to open the Data Rebuild Window.

2. Click “OK” after selecting the target disk and the sample rate. Note that the sample rate must be the same value as in “Engineer Configuration” > “Record&Play” > “Record Mode”.

Chapter 7: The NetPlay Terminal

The NP-100 NetPlay system is a network-based voice replay system for the Archivist voice logging recorders (VLR). It consists of a VP-874 voice card and the NetAccess software installed on a Windows 98/NT/2000/XP platform with 10 Base-T LAN interface.

Connected to the VLR main system via LAN, a NetPlay Terminal can search, browse and play any voice records in the VLR system.

For more details please refer to the NetPlay manual.

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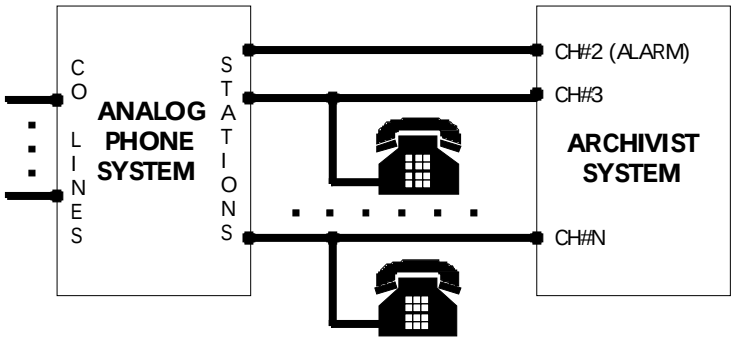
Appendix A: System Wiring

The following wiring diagrams illustrates how the system should be wired to the telephone lines. Please note that all connections to the Archivist system shown below use the middle two wires only.

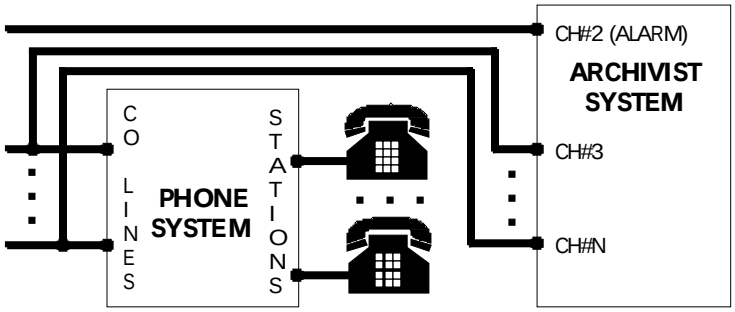
Wiring With Analog Phone Systems



Archivist channels are connected in parallel to the station phones via system terminal block or Y connectors. The (optional) Alarm Channel connects to an unused station, or a dedicated CO line. In this configuration, either “Local Phone” or “Energy” Start Methods can be used. However, the “Local Phone” Method is prefered because the recording will always start when the phone is picked up, and stop when the phone is hung up, no matter if there is any talking or not. If the “Energy” Method is selected, the recording is activated by sound energy and it will stop when there is a period of silence longer than a preset value. A new recording will start when the conversation resumes afterwards. Therefore a single phone call may be broken into several recordings. It is also possible that one recording contains more than one call.

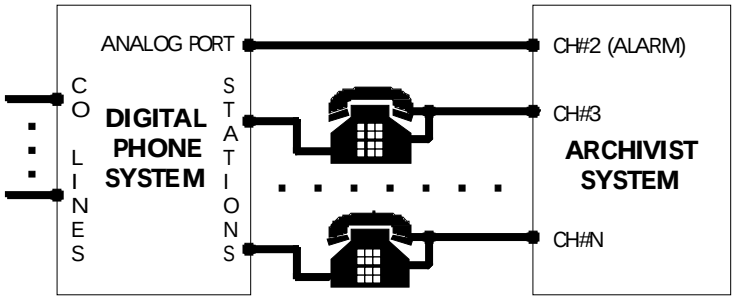
Please note that this wiring diagram also applies to digital phone systems with analog ports. For digital ports, the following wiring diagram must be used.

Wiring With CO Lines Directly



Archivist channels are connected in parallel to CO (Central Office) lines via system terminal block or Y connectors. The (optional) Alarm Channel connects to a dedicated CO line. Similar to the "Wiring With Analog Phone System" configuration, this configuration can use either "Local Phone" or "Energy" Start Methods. However, this configuration is usually not chosen because it is impossible to associate a recording with a particular station. However, this configuration allows a smaller Archivist sytem to be used since there are usually less CO lines than stations. And if there is no phone system in the facility, this is the only way to go.

Wiring With Digital Phone Systems



Archivist channels are connected in parallel to the station phones' handset via system terminal block or Y connectors. The (optional) Alarm Channel connects to an analog port in the digital phone system, or a dedicated CO line. In this configuration, only "Energy" Start Method may be used. Voice recording starts when sound energy is detected and stops when silence is detected for a preset period. A new recording will start when the conversation resumes afterwards. Therefore a single phone call may be broken into several recordings. It is also possible that one recording contains more than one call.

Digital Phone Connection Scheme

When a digital phone is connected to VLR system as an input, the recorded signals must be from the handset instead of the phone set. Since most handsets use a narrower (RJ-9) connector, a RJ-9 converter must be inserted into the Y Connector first in order to make it narrower. Make connections according to the following diagram. With this scheme, the system configuration's Start Method must be set to either VOX or Manual, but not Local Phone.

Below are the details of the connection scheme.

1. Make sure both RJ-9 converters are inserted into the front holes of the Y connector, making two RJ-9 holes available.

2. Connect the VLR port input to the back of the Y connector with a RJ-11 phone cord.

3. Disconnect the handset from the telephone and re-connect it to one front RJ-9 hole of the Y connector with the handset's original cord. Connect the handset hole on the phone to the other front RJ-9 hole of the Y connector with the short RJ-9 phone cord.

Note: The recorded signals must be from earphone and are normally taken from the inner two wires of RJ-11. However, as handset design might be different, sometimes the actual connection will be determined after measuring the earphone wire leads.

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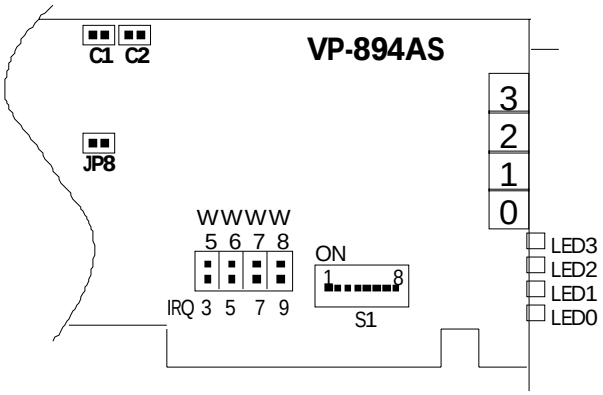
Appendix B: VLR Kit Installation Guide

NOTE:

The VLR Kit is supplied to value added resellers and consists of 4-port voice board(s), VLR software and optional VRP-116 system speaker for building systems locally.

For VLR-106, a half-sized board VP-894AST is used. It has the same installation procedure as the VP-894AS except all quadruple numbers of channel are not available.

VP-894AS Board Configuration



IRQ Jumper Definition
All boards in the same system must use the same IRQ number. Just move the IRQ jumper to one of the following selections: 3, 5, 7 & 9.

DIP Switch Definition
S1-1 should be set to ON if there is only one board in the system. If there are more than one boards in the system, set any one board to ON and the rest to OFF.

S1-2 to S1-5 determines the Board Number and Channel Number according to the following diagram. Each board must have an unique number so that each channel has a unique Channel Number.

S1-2	S1-3	S1-4	S1-5	Board Number	Channel Number
OFF	OFF	OFF	OFF	0	1 ~ 4
OFF	OFF	OFF	ON	1	5 ~ 8
OFF	OFF	ON	OFF	2	9 ~ 12
OFF	OFF	ON	ON	3	13 ~ 16
OFF	ON	OFF	OFF	4	17 ~ 20
OFF	ON	OFF	ON	5	21 ~ 24
OFF	ON	ON	OFF	6	25 ~ 28
OFF	ON	ON	ON	7	29 ~ 32
ON	OFF	OFF	OFF	8	33 ~ 36
ON	OFF	OFF	ON	9	37 ~ 40

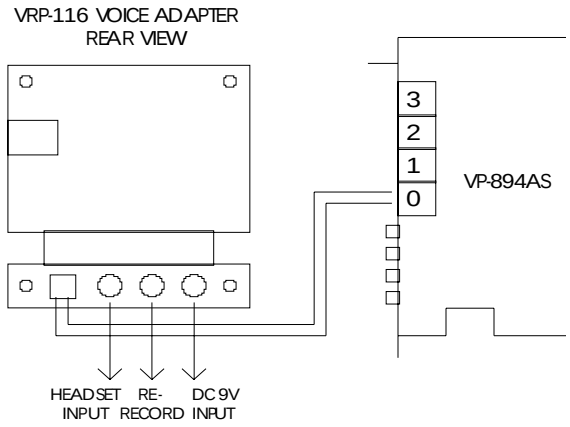
ON	OFF	ON	OFF	10	41 ~ 44
ON	OFF	ON	ON	11	45 ~ 48
ON	ON	OFF	OFF	12	49 ~ 52
ON	ON	OFF	ON	13	53 ~ 56
ON	ON	ON	OFF	14	57 ~ 60
ON	ON	ON	ON	15	61 ~ 64

S1-6 to S1-8 determines the memory address according to the following diagram. All boards must use the same memory address.

S1-6	S1-7	S1-8	I/O ADDRESS
OFF	OFF	OFF	C000 ~ C7FF
OFF	OFF	ON	C800 ~ CFFF
OFF	ON	OFF	D000 ~ D7FF
OFF	ON	ON	D800 ~ DFFF
ON	OFF	OFF	E000 ~ E7FF
ON	OFF	ON	E800 ~ EFFF
ON	ON	OFF	A000 ~ A7FF
ON	ON	ON	A800 ~ AFFF

In order for the Line Monitoring function to work, all VP-894AS boards must be daisy chained with the enclosed 2-pin cable via connectors C1 and C2. For example, connect C2 on board #0 to C1 on board #1, connect C2 on board #1 to C1 on board #2, and etc. Also, JP8 must be closed on board #0, and open for all others.

VRP-116 Voice Adaptor Connection



Software Installation

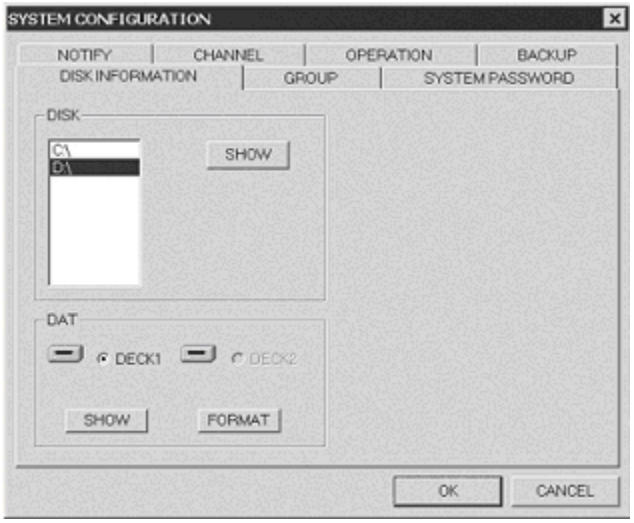
Run the SETUP.EXE program on the CD and follow the instructions on screen.

Double click on the shortcut to start the VLR program.

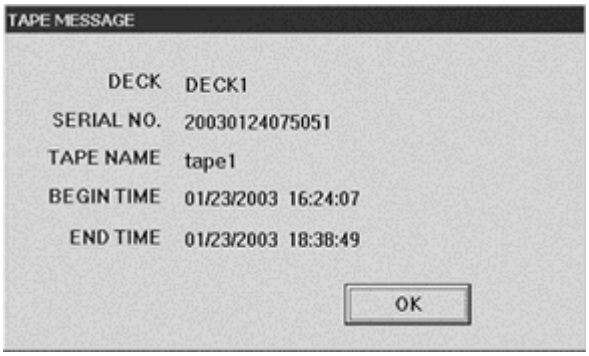
Appendix C: DAT Operation Guide

Checking Tape Status or Formatting Tape

To check the status of or format a DAT tape, insert the tape into the DAT drive and enter the **Configure/System Configure/Disk Information** menu, as shown below:



Select the proper tape deck. Click on “SHOW” to display the tape information, or click on “FORMAT” to format the tape.



Deck
Indicate which deck the information is obtained from.

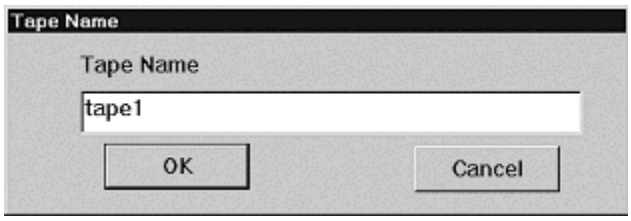
Serial No.
The serial number assigned to the tape by the system automatically.

Tape Name
The name assigned by the user to the tape when it is formatted.

Begin Time
The date and time when the tape was formatted.

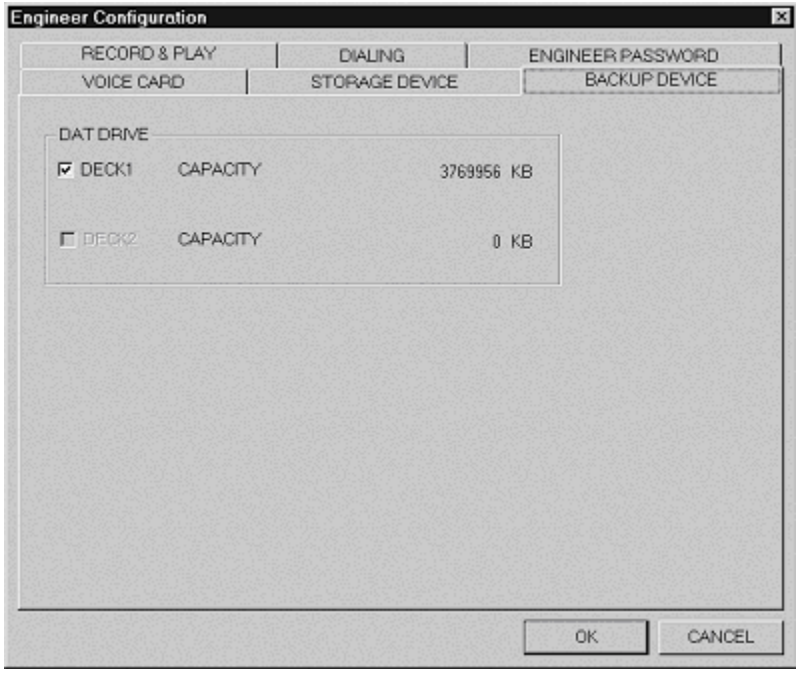
The following menu pops up after you click the “FORMAT” button. You must click “OK” to confirm or “CANCEL” to cancel the operation. A new tape must be formatted first before use. A used tape may be formatted to be re-used.

After the format is completed, the following menu is displayed. You may enter a name for your own reference.



Configure DAT Drives As Backup Devices

To configure the DAT drive(s) as backup device(s), enter the **Configure/Engineer Configure/Backup Device** menu, as shown below:



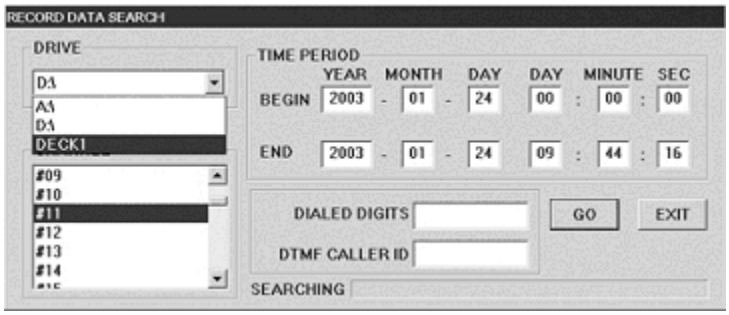
The system supports up to two DAT drives, serially connected.

Capacity
Total capacity of the tape.

Remaining:
Available capacity of the tape.

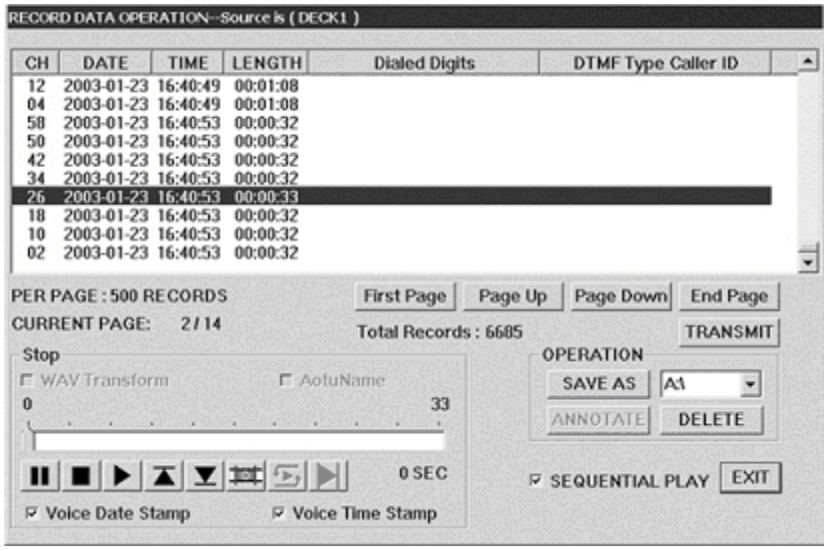
Retrieving Data From Tape

To retrieve record data from a DAT tape, first enter the **Record Data/Record Data Search** menu, as shown below:



Select the proper tape deck and target channels, enter other information if necessary, and click on “GO” to start the operation. After the searching is done, the following menu will appear:

DAT Record Data Operation



Record data operation for DAT is largely the same as for other backup devices such as DVD-RAM. Please refer to Chapter 3 for general descriptions. The following describes additional features of DAT opeation.

Current Page
134/136 means that there are totally 136 pages and page 134 is currently being shown.

Per Page
500 records means each page contains 500 records.

First Page Go to the first page.
End Page Go to the last page.
Page Up Go to the previous page.
Page Down Go to the next page.

Annotate and Delete are not available because DAT drive is a sequential device and does not allow random insertion or deletion.

Installing DAT Drives

Follow these steps if, for some reason, you need to install or re-install a DAT drive or its software driver. Please note that Archivist supports DAT drives under Windows NT only. Also, DAT data compression is not supported. We recommend HP's SureStore8 (DDS-2) SureStore24 (DDS-3) DAT drives because they have been long-term tested in Archivist systems.

Hardware Configuration

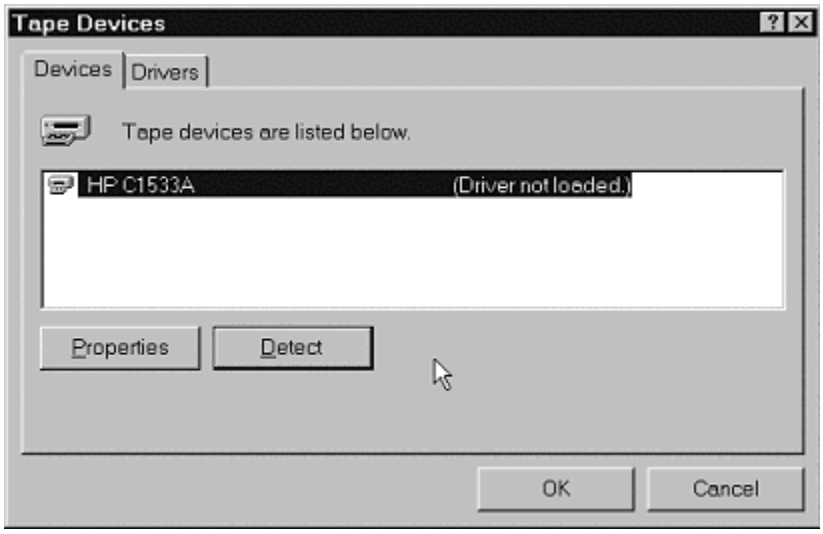
Keep the DAT drive's default configuration if it is the only SCSI device in the system. Otherwise, refer to the drive's manual and configure the drive's ID and terminator so that the drive does not conflict with other SCSI devices in the system.

Software Installation

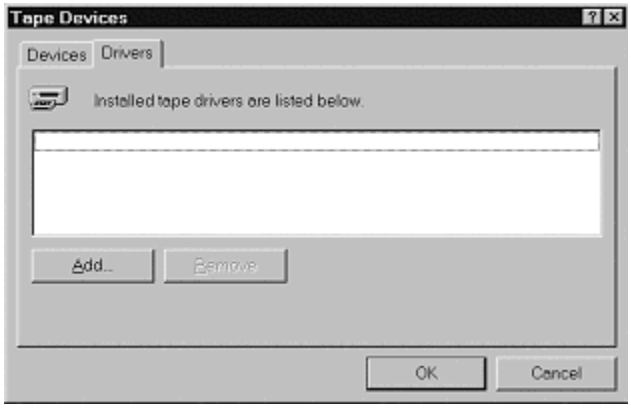
1. If your Windows NT 4.0 version is Service Pack 1, please upgrade to Service pack 4 or later. Windows 2000 or XP will automatically detect the DAT drive, so you may skip the following steps.

2. Double click "tape devices" in the "control panel". If the drive is made by HP and the following window appears, click "Cancel".

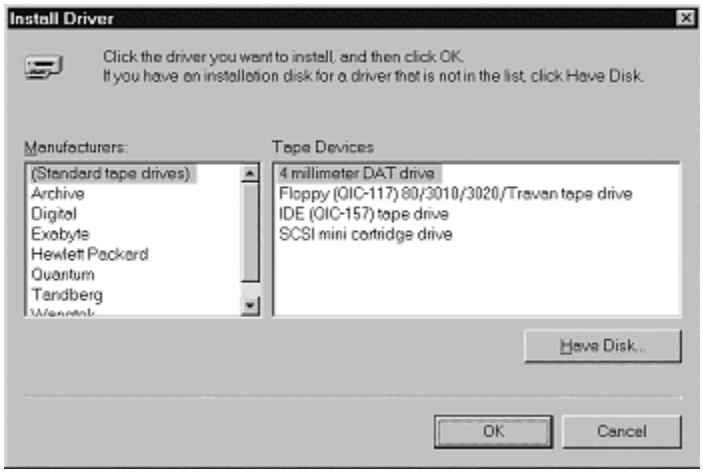
3. Click "Drivers" when the following windows appears.



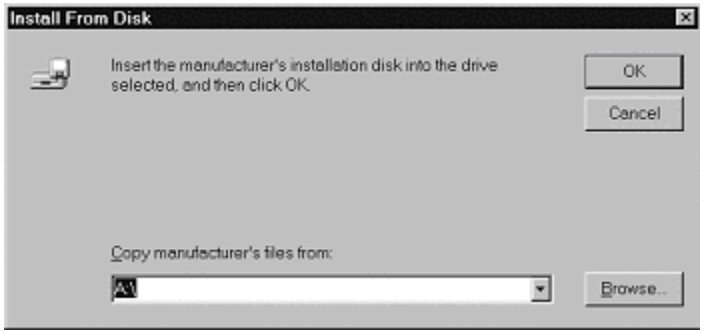
4. Click “Add” when the following window appears.



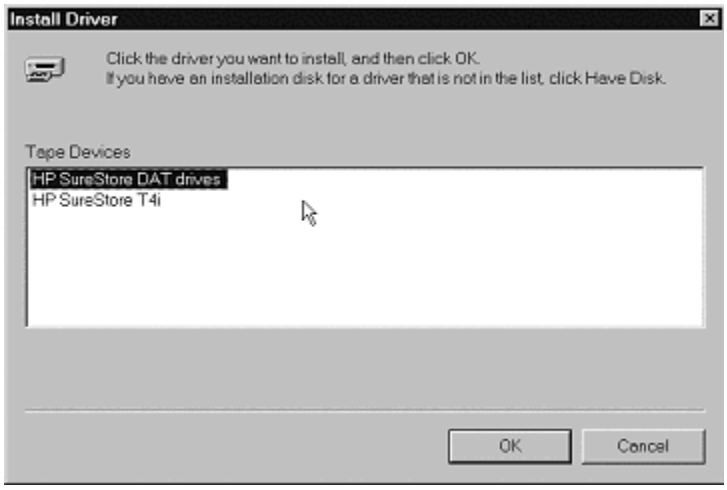
5. Click “have disk” when the following window appears.



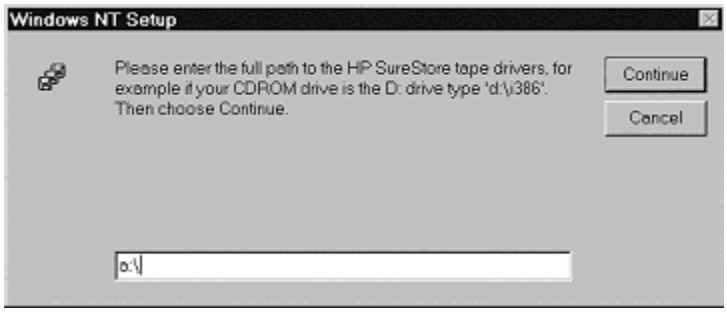
6. When the following window appears, place the driver disk in the proper drive, enter the drive name (usually A:\) and click “OK”. The driver disk should come with the DAT drive.



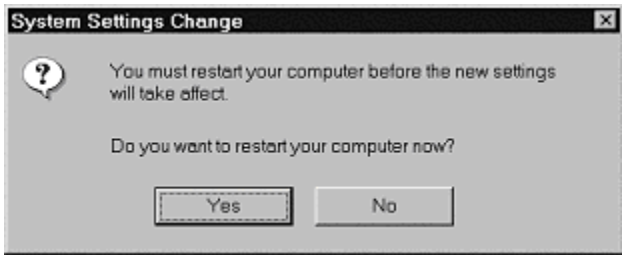
7. This following window is what will appear if the DAT drive is an HP SureStore. Select HP SureStore DAT drives and click “OK”.



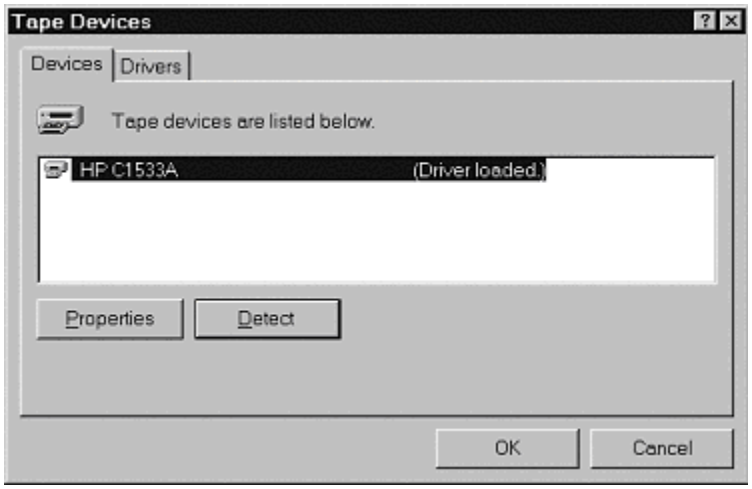
8. When the following window appears, enter the driver path (usually A:\) again and click “Continue”.

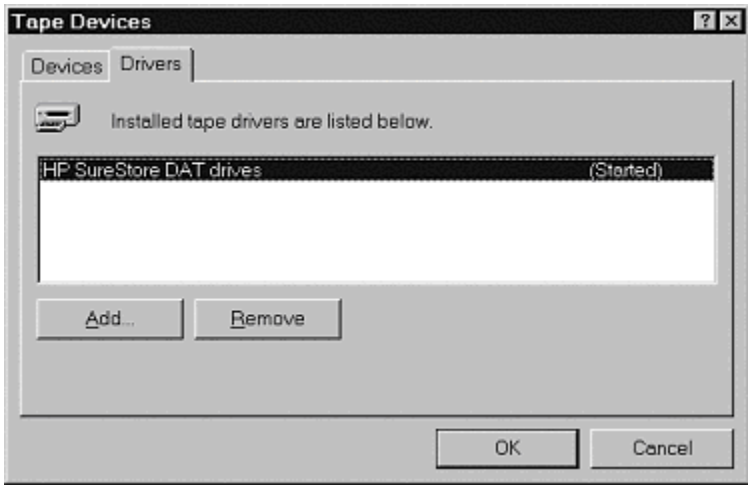


9. After the driver is installed, click “Yes” to restart the computer.

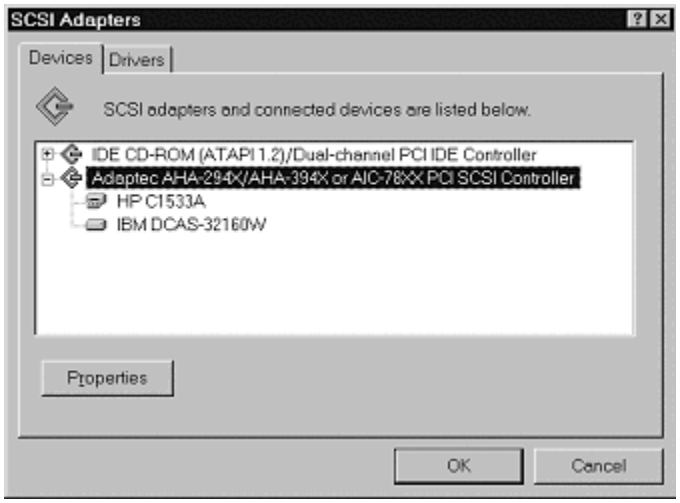


10. To check if the DAT drive is properly installed, click “Tape Device” in the “Control Panel” and you should see windows similar to the following.

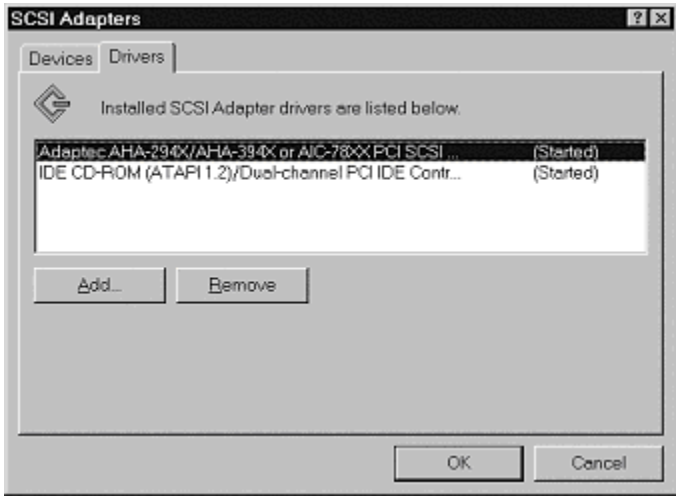




If you click “SCSI Adaptors” in the “Control Panel”, you should see the DAT drive listed. The following example lists two SCSI devices - an HP C1533A DAT drive and an IBM DCAS-32160W hard disk.



Now click on “Drivers” and if the device is marked with “(Started)”, it confirms that the device is in operation.



Appendix D: System Architecture

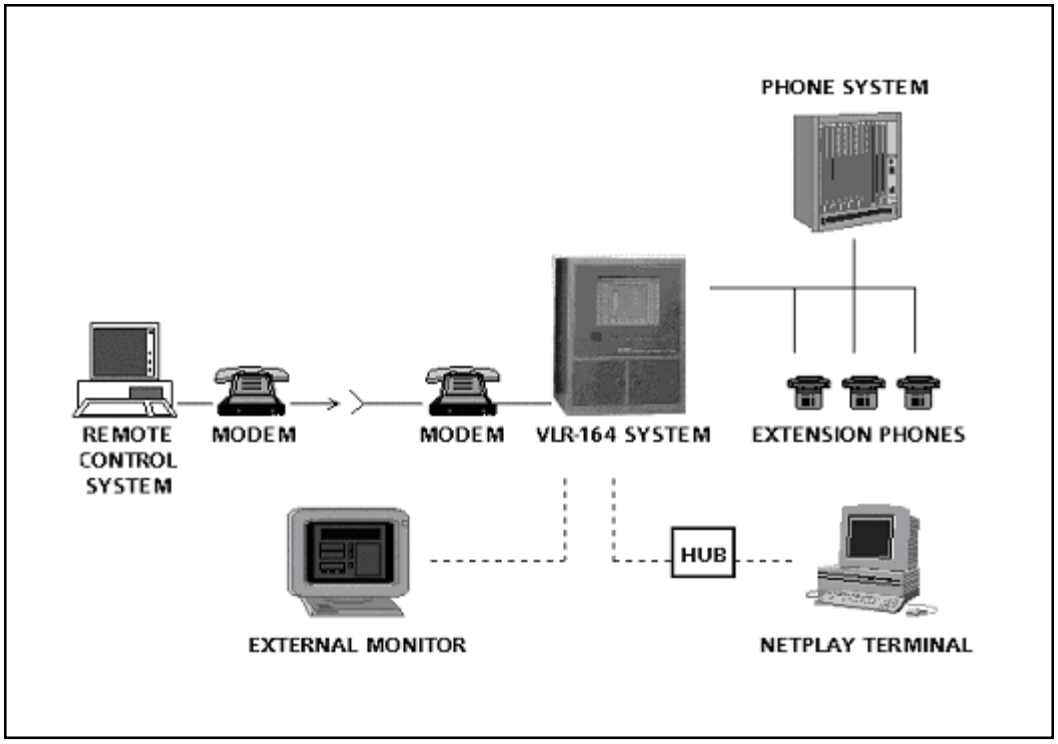
Single Unit Structure

1. Single unit structure is suitable for applications requiring less than 64 channels.

2. The optional Remote Control Terminal allows system administrator to monitor system operation and upgrade system software remotely.

3. In addition to the built-in display, system operation can also be monitored on the optional External Display (if desired).

4. The optional NetPlay Terminal can be used to access voice records stored on the main unit's hard drive and DVD-RAM drive.



Peer-to-peer Networked Structure

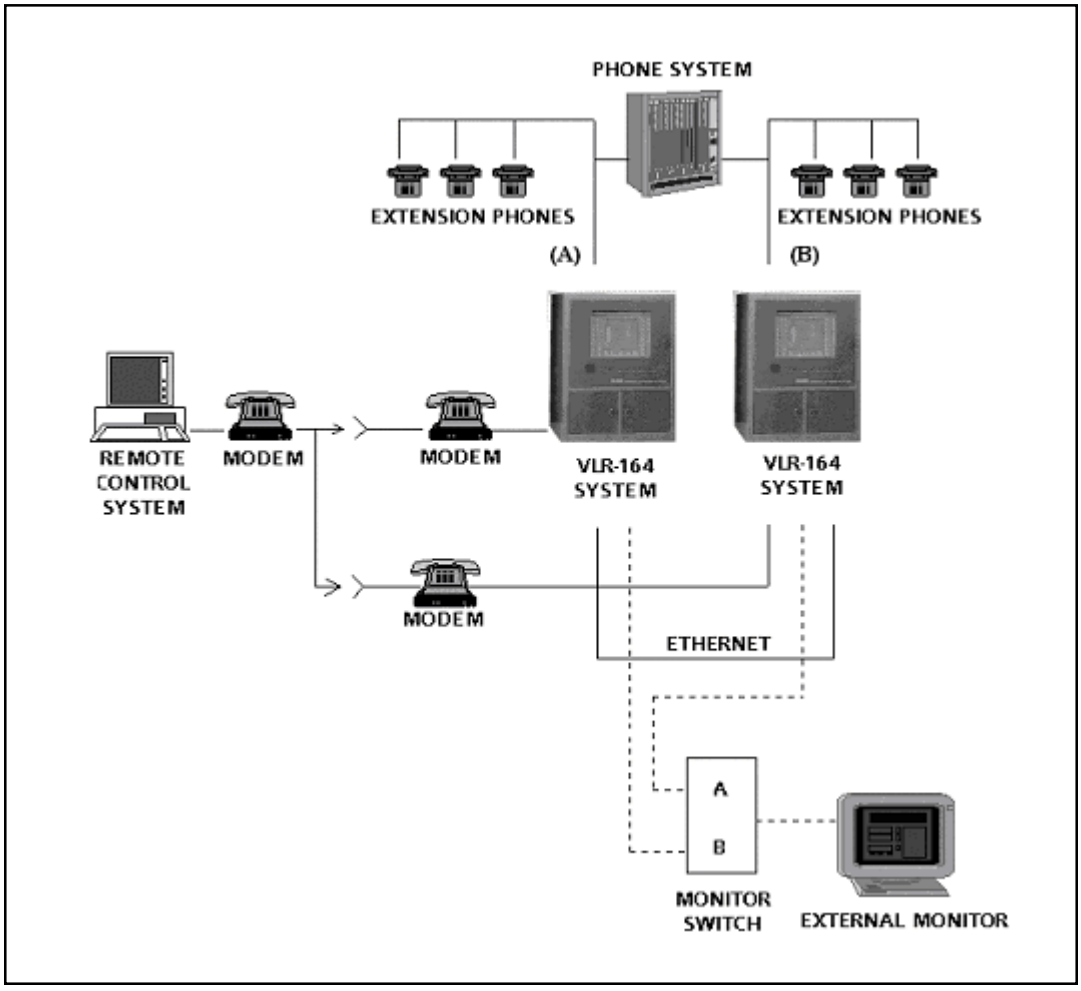
1. Peer-to-peer networked structure is suitable for applications requiring more than 64 channels. Two main units can be peer-to-peer networked together and access each other's voice records.

2. If a main unit is to be monitored by the Remote Control Terminal, it must be equipped with its own modem.

3. In addition to the built-in display, system operation can also be monitored on the optional External Display (if desired) via an A-B monitor switch.

4. An optional NetPlay Terminal can be used to access and replay voice records stored on any main unit's hard drive and DVD-RAM drive through network hub.

5. Network hub may be necessary if the distance between the two main units are too far.

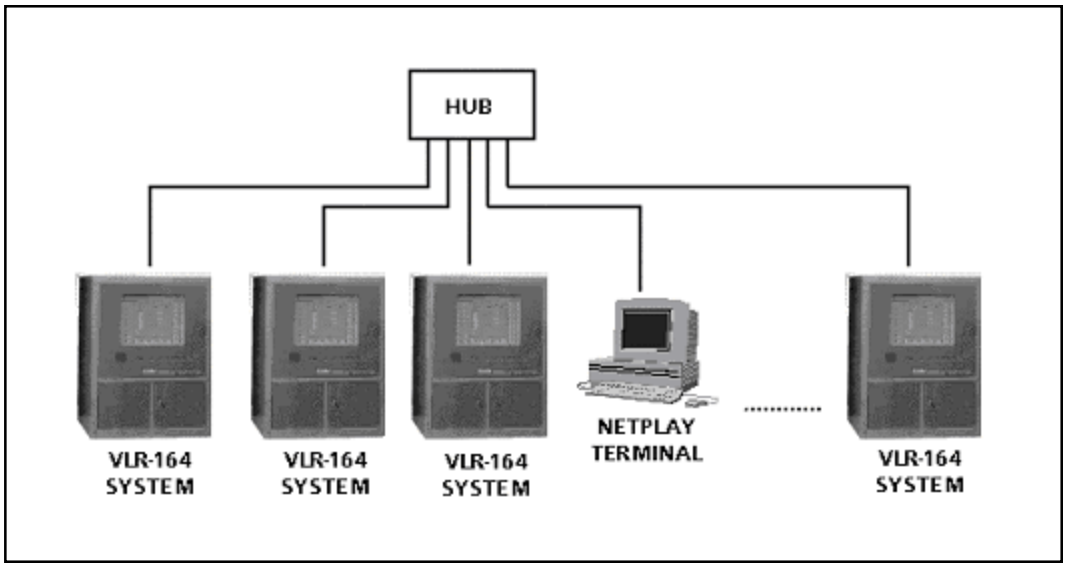


NT Networked Structure

1. NT networked structure is suitable for applications requiring more than 128 channels.

2. If a main unit is to be monitored by the Remote Control Terminal, it must be equipped with its own modem.

3. The optional NetPlay Terminal can be used to access and replay voice records stored on any main unit's hard drive and DVD-RAM.



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Appendix E: Trouble Shooting Tips

NOTE: Follow the instructions step by step till the problem is solved. Check to see if the problem is fixed after each step. If the problem is fixed, stop there and don't go through the remaining steps. If the procedure requires that the system be turned off, always exit the VLR program before shutting down the system.

1. Blue Screen

A. Shut down the system. Check if the RAM module is securely installed. If you are not sure, reinstall the RAM module once.
B. Turn on the system and check if the CPU fan runs normally. If not, replace the fan.
C. Exit and turn off the system. Replace the RAM module.
D. If the problem still exists, then the operating system is probably trashed. You will have to either re-install the OS or restore a previous copy.

2. A channel does not record.

Pick up the telephone handset and run the Line Check function on that particular channel.

A. If line energy can not be detected, then
   a. Check if the RJ-45 to RJ-11X4 converter has bad contacts. If so, replace it.
   b. Check if the phone cords are good. If not, replace them.
   c. Replace the VP894AS card.
B. If using Local Phone method and line energy can be detected, replace the VP894AS card.

3. The system can not find one or more VP894AS cards.

A. Shut down the system and make sure the card's DIP switch (I/O, Card Number and IRQ) is configured properly. Refer to the VP894AS Board Configuration section in this manual for configuration instructions.
B. Replace the VP894AS card.

4. DAT I/O error.

A. Clean the DAT drive 2 to 3 times with a DAT cleaning tape. If the error still occurs, use a new DAT tape.
B. Exit and restart the system. Do a backup to verify the error is gone.
C. Replace the DAT drive.

5. The speaker makes no sound.

A. Check if the speaker's RJ-11 connector has bad contacts.
B. Exit and turn off the system. Wait 10 seconds and turn it on again. After 2 to 3 seconds the speaker should make some sound. If not, replace VP894AS card #0 or the speaker.
C. Replace or repair the VLRC-164 (front panel) P.C.B.

6. The system can not find the hard drive.

A. Exit and turn off the system. Check if the hard drive's cable is securely connected.
B. Replace the hard drive.

7. The system has no power.

A. Check if the power cord is securely plugged in.
B. Check if the PC fuse is burned. If so, replace it.
C. Check if the power supply is good. If not, replace it.

8. No display on the screen after power up.

Connect an external monitor to the system.

A. If the external monitor displays normally:
   a. Check if the connector on the TFT-164-CPU board (a small daughter board on the CPU card) is loose or broken.
   b. Check if the connector on the TFT display is loose or broken.
   c. Check if the high-voltage module on the TFT display is loose or broken.
B. If the external monitor has no display:
   a. Replace the CPU on the CPU card.
   b. Reinstall or replace the RAM modules on the CPU card.
   c. Replace the CPU card.

9. LCD screen becomes darker than normal.

A. The LCD light tube is defective.