Determining Tape Block Size and Format

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About this Document

The AIX Operating System supports tape devices with various block sizes. Tapes written at one particular physical block size may not be readable unless the tape device is reconfigured for that same block size. This document describes how to determine the correct physical block size and how to determine the tape format (such as tar or backup/restore) in all versions of AIX.

Block Size Determination

You can find the tape block size by configuring the device to accept a very large block, performing a single read, and determining the size of the read block, as in the following steps:

1. Begin by configuring the device for variable block size data:

   ```
   chdev -a block_size=0 -l <tape>
   ```

   where <tape> is the device, such as rmt0 or rmt1.

2. Next, read a single block from the device and write the block to disk. This will allow you to see exactly how large the block is and what data is contained on the tape.

   ```
   dd if=/dev/<tape> of=/tmp/block bs=128k count=1
   ```

3. The data from the tape block will be in the file /tmp/block. You can determine the block size by looking at the byte count with

   ```
   wc -c /tmp/block
   ```

   The size in bytes is the size of the physical blocks on the tape, assuming the tape was written with a single physical block size.

4. You can then use this size in the chdev command given above to configure the tape drive for the loaded tape.

| Please Note: If you only need to determine the blocksize of the archive and
| want to avoid creating the temporary file, you can issue the following command:

| `dd if=/dv/<tape> bs=128k count=1 | wc -c`

Format Determination

The "file" command can be used on the block of data that was read from the tape in the previous section (the /tmp/block file) to determine the format type of data on the tape.

```
file /tmp/block
```

The file command attempts to match header information in the file against known header types described in the /etc/magic file. After a change to the /etc/magic file (described below), the file command will recognize tar, cpio, and backup/restore formats.

However, on AIX versions previous to 4.1 and later, the file command will not recognize format types that do not have header information, such as dd and back-by-inode. For example, if you used dd to put a compressed file on a tape and then followed the procedures in this document, the format would be recognized as compressed.

Updating the /etc/magic file (not necessary for AIX 4.1 and later)

To update the /etc/magic file so that tar and backup/restore formats can be recognized by the file command, do the following:

1. Become the root user.
2. Make a backup copy of the /etc/magic file by running

   ```
   cp /etc/magic /etc/magic.backup
   ```

3. Add the following two lines to the bottom of the /etc/magic file. Note that each line must start in the first column.

   ```
   257   string    0x7573746172   tar format file
   0     long      0x09006bea     backup/restore by name format file
   ```

Shell Script to Automate Block Size Determination

This shell script provides a means of performing the block-size determination steps automatically.

```
#!/bin/ksh
#
#        lstape -- List a tape's block size
#
if [ $# -ne 1 ] ; then
        /usr/bin/echo 'usage: lstape device'
        exit 1
fi
#
#        Check the name and put it in a standard format
#
if [[ "$1" = /dev/* ]]; then
        TAPE=${1##/dev/}
else
        TAPE=$1
fi
#
#        Set the block size to variable
#
/usr/sbin/chdev -l ${TAPE} -a block_size=0 >/dev/null
if [ $? -ne 0 ]; then
        exit 1
fi
#
#        Read a single block and write to /tmp
#
/usr/bin/dd if=/dev/${TAPE} bs=128k of=/tmp/lst$$ count=1
if [ $? -ne 0 ]; then
        /usr/bin/rm -f /tmp/lst$$
        exit 1
fi
#
#        Get the block size of the resultant file
#
/usr/bin/wc -c /tmp/lst$$ | read SIZE FILE
/usr/bin/echo "$TAPE:        ${SIZE} bytes per block."
if [ -x /usr/bin/file ] ; then
        /usr/bin/file /tmp/lst$$ | sed -e "s!/tmp/lst$$!/dev/${TAPE}!"
fi
#
#        Set tape drive to correct physical block size
#
/usr/sbin/chdev -l ${TAPE} -a block_size=${SIZE} >/dev/null
/usr/bin/rm -f /tmp/lst$$
exit 0
```

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