AIX Questions

Compiled by Dave Franks

The AIX Solution Provider Technical Support group in Austin, Texas, supports software vendors who are porting applications to AIX. This article is a compilation of questions that are frequently asked by vendors. The name of the responding Technical Support Group staff member appears after each response.

I have a C application and would like to know how to set up my signal handlers to create a full core dump.

To enable a full core dump, set the `SA_FULLDUMP` flag in the `sigaction` subroutine for the signal that is to generate a full core dump. If this flag is set when the core is dumped, the data section is included in the core dump. Depending on the signal handler being used, there are many ways to implement this procedure. Figure 1 shows an example.

By default, the user data is not included in a core dump. However, a partial core dump includes the current process' stack, the user structure, and the state of the registers at the time of the fault, which will contain sufficient information for a stack traceback. If an error occurs, `abort()` will produce a core file, and `SA_FULLDUMP` will ensure a full core dump.

—Jeff Simon

```
struct sigaction siga;
siga.sa_handler = SIG_DFL;
siga.sa_flags   = SA_OLDSTYLE;
sigaction(SA_FULLDUMP,&siga,NULL);
abort();
```

Figure 1. Setting the SA_FULLDUMP flag to get a full core dump

What is the danger of turning off quorum checking in two-way mirroring?

The only danger in turning off quorum checking is that if one of the disks becomes inaccessible, the volume group will still vary on, and the user may be unaware that a bad disk needs to be repaired.

The user can automate the process of error notification by adding a stanza to the `/etc/objrepos/errnotify` file via the `odmadd` command. The stanza indicates to the error notification daemon which errors are of interest and what command to run when such an error is encountered by the error logging daemon. The command that is run can be a user-written shell script or application that takes the appropriate action.

More information on this subject is available in InfoExplorer in the section "Error Notification Object Class."

—Priyamvada

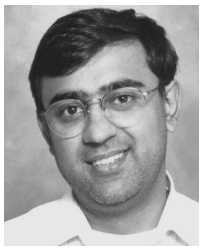
Why does my National Language Support-(NLS-) enabled application fail to find the catalogue file?

There are two issues.

1. If an application does not call `setlocale()` before any of the other NLS functions, such as `catopen()`, the application runs in the default C locale. This locale states that the default messages supplied to `catgets()` should be used and no message catalogue should be opened.
2. Be sure that PTF U425984 is applied. Previously, if the catalogue could not be found, `catopen()` would return an error only if `LANG` was unset or set to an invalid locale. If `LANG` was valid, `catopen()` would return a file descriptor, and calls to `catgets()` failed.

—Ismat Dhanjibhai

Priyamvada



Ismet Dhanjibhai

```
/usr/ucb/nm $1  |egrep ' [BAD] '|cut -c12- | sed -e
   's/^#/ #/'| \
        fgrep -v ___start | sort | uniq >$1.exp
```

Note: There are spaces around `[BAD]` and before the `#` in the substitution string of the `sed` command.

Figure 2. Creating an export list

What is the total number of files that AIX can open at one time?

AIX has an `NFILE` parameter, which refers to the maximum number of open files that AIX 3.2.5 will support for the entire system at one time. This number is hard-coded to 200,000 and cannot be configured.

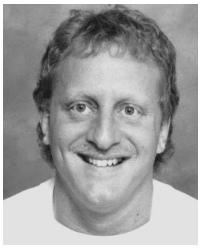
AIX also has a `NOFILE` parameter that refers to the maximum number of open files allowed per process. This number is hard-coded to 2,000 and cannot be configured.

—Jeff Simon

How can I keep I/O signals from getting detected in `dbx/xde`?

Type `ignore io` before running the application in `dbx`.

—Sai P. Ramanath



Jeff Simon

What is the `kproc` with PID 514 on a `ps aux` and why is it taking so much CPU time?

Process 514 is the "idle process" that runs when there is no other work for the system to do. It runs at the lowest possible CPU priority and does not slow down your system.

—Rick Malone

The `-n` option on the `echo` command does not work in AIX 4.1. For example, echo -n "Press return to continue" prints out the `-n` along with the text. How can this be suppressed?

Sai P. Ramanath

AIX 4.1 no longer supports the `-n` option for the `echo` command in `ksh` and `bsh`. This conforms to the XPG4 requirements. The same result can be obtained in `ksh` with a `\c` within double quotes.

Therefore, your script can be changed to the following:

```
echo "Press return to continue\c"
```

This will work on AIX 3.2.5 and 4.1. The `-n` option is valid only in `csh`.

—Priyamvada

Why are my NFS filesystems not being mounted at system reboot?

The filesystems are mounted from nodes whose IP addresses can only be resolved via Network Information Services (NIS). In AIX, NIS starts after all filesystems with the stanza `mount = true` within `/etc/filesystems`. Because NIS is not active at that time, the mounts fail. The following workarounds may help:

1. Add the hosts to `/etc/hosts`.
2. Make the stanza `mount = false`, and mount these manually.
3. Make the stanza `mount = false`, and make all those filesystems part of a group. (In `/etc/rc.nfs`, after NIS has been started, mount that group.)

—Rick Malone

Can I create an export list from an executable that I have already built?

The script in Figure 2 will create an export list from an executable. From the command line, enter `<script> <executable>`.

—Jeff Simon

I am trying to find the Simple Network Management Protocol (SNMP) protocol in an `IPREPORT` output. The `IPREPORT` raw file was generated with the `IPTRACE` command that used the `-P` flag. Figure 3 defines the `-P` flag for the `IPTRACE` daemon in InfoExplorer 3.2.5.

Why does the SNMP protocol not show up when the `<Protocol>` value to the `-P` is `tcp`?

The SNMP protocol uses User Datagram Protocol (UDP) instead of TCP packets. You were looking for the SNMP/TCP protocol instead of the

SNMP/UDP protocol on the IPTRACE output. We recommend using the following flags for the IPREPORT command used on the IPTRACE file captured:

```
ipreport -rns <IPREPORT raw output file>
```

where:

- `-r` Decodes Remote Procedure Call (RPC) packets
- `-n` Includes a packet number to facilitate easy comparison of different output formats
- `-s` Prepends the protocol specification to every line in a packet

—Rick Malone

How do I modify the "From:" line for mail destined for the outside world?

On all mail clients identified as mail originators, use the following steps to change /etc/sendmail.cf:

1. Edit the file /etc/sendmail.cf using an editor, for example, vi /etc/sendmail.cf.
2. Search for the following text under the TCP Mailer Specification title, rule set S14:

   ```
   #
   #  Append full local domain where none exists at all.
   #
   ```

   The vendor found the following in the /etc/sendmail.cf file:

   ```
   #
   #  Append full local domain where none exists at all.
   #
   R$+                     $@$1<@LOCAL.D>
   ```

3. Figure 4 shows the suggested changes.
4. Enter the following commands:

   ```
   sendmail -bz
   refresh -s sendmail
   ```

5. Then try it out by sending mail.

—Rick Malone

```
-P <Protocol>
Records packets that use the protocol specified by the
<Protocol> variable.

The <Protocol> variable can be a decimal number or name
from the following file:

/etc/protocols
```

Figure 3. The –P flag for the IPTRACE daemon

```
#
#  Leave all other typical domain addresses alone.
#
R$+<$+>                 $@$1<$2>
#
#  Append full local domain where none exists at all.
#
#R$+                    $@$1<@LOCAL.D>
# If it is a local name, append local host. Else, append
   domain.
R$=N                    $@$1<@LOCAL.D>
R$+                     $@$1<@D>
```

Figure 4. Suggested changes to the /etc/sendmail.cf file

What are if-req, coreq, and prereq in relation to installation and Table of Contents (TOC) format?

An if-req is a relationship between Program Temporary Fixes (PTFs). For example, you may want PTF "A." This PTF specifies that if product "B" is on the system, then PTF "C" must be installed for product "B" before PTF "A" can be applied. In short, product "B" must be upgraded before that PTF can be applied.

A coreq is a PTF required by the PTF you are applying. Both PTFs are for the same product and must be applied before the installation processing completes.

A prereq is a PTF that must be applied before the PTF you have selected. Both PTFs are for the same product.

—Sue Lowe

What are the numbers preceding the { symbol within the TOC file, such as in 1:88 3 R G?

The first field in the first number is the volume number (such as the tape volume to which this product or fix relates). In the example, the first tape is where this fix is found.

Sue Lowe

The second field in the first number is the image number (the location of this image on the volume). In the example, the image would be the 88th image on volume 1.

The second character is the AIX revision number::

1 = AIX 3.1
2 = AIX 3.1.1
3 = AIX 3.2

The third character indicates the platform (R represents the hardware platform—RISC System/6000).

The last character, G, is the type. When you view the Table of Contents on a tape using System Management Interface Tool (SMIT), the information under the I/U column is coded as follows:

G	GOLD or automatic fix
I	Install image
S	Subsystem
M	Maintenance

—Sue Lowe

What level of AIX is required to support X11R6?

IBM does not ship X11R6. Other companies have ported X11R6 onto AIX 3.2.5.

What can be expected with X11R6 to handle large protocol requests to a server?

The standard X protocol only allows requests up to 2^{18} bytes long. A new protocol extension, `BIG-REQUESTS`, has been added that enables a client to extend the length field in protocol requests to be a 32-bit value. This is useful for PEX and other extensions that transmit complex information to the server.

—Sai Ramanath

How can I save space on the hard drive?

There are three steps to do this:

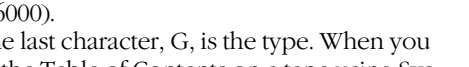
1. Commit all software.
2. Run the `ptfdir_clean` script in `/usr/sbin` and note the parameters in the script. Do not do this step if you have a server with diskless clients.
3. Remove all files in `/usr/lpp/<LPPNAME>/inst_<PTFNUMBER>`.

—Fred Arnold

How much space needs to be available in `/tmp` when doing an install?

You need at least 8 MB available.

—Fred Arnold



How can I make Xstation X server recycle back to a login window instead of getting hung when exiting from the X server?

At this time there are only two workarounds to resolve this situation: use XDM or kill the `aixterms` before exiting the X server. It is not necessary to kill other clients.

—Sai P. Ramanath

We are having problems with ftp. When one particular user ftps to the system, she gets an error message: 530 (username) access denied.

You are using `tcsh`. The problem can occur because the user's login shell is not in the `/etc/security/login.cfg` file. Use the shell called `/usr/local/bin/tcsh`. Add this shell to the shell's stanza in `/etc/security/login.cfg`.

—Priyamvada

Fred Arnold

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