

**in**

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# Chapter 1

## in

### 1.1 DAC interface and applications

Dump The graphical page dumper

Developer The developer material

### 1.2 Dump - the application that dumps the text-lines onto the printer

The application DAC-Dump

The DAC-Dump program is used to dump the contents of an archive or of a marked text-block onto the printer. It's currently a bit tricky (in form of "not too system conform" but it works. The DAC-interface of BareED has yet only limited functions - so Dump cannot offer more!

Before you use the menu "Project - Print" which will start Dump, you have to set the desired output mode via the System preferences editors, "Printer", "PrinterGfx" and if necessary "PrinterPS". Dump will take your entered settings into account when laying out the entire pages!

Since Dump and BareED are somewhat limited, you should take care that BareED doesn't allow you to modify the archive while a DAC application is running.

Currently, the graphical dump will be only made in monochrome (black / white). Since the System's printer driver is used for dumping, the result is poor. Because of this, Dump is replaced by a third party program, which for example is connected to a commercial printer program.

You have the choice to dump the whole archive or only a selected block of characters. How to mark a block inside of BareED should be clear.

If you use a usually print-device of the OS, please firstly choose " ←  
Pica" as Print Pitch and set the  
appropriate values for Page Length, Left Margin and Right Margin - since the ←  
original printer-drivers rely on  
these values to compute the correct aspect-ratio - which cannot be changed by Dump ←

To start dumping a page onto the printer choose "Project - Print". BareED ←  
will look then for a file labelled  
Dump in its home-directory in a separate directory labelled DAC or in its ←  
home-directory only if the DAC  
directory is non-existent!

Example:

Work:Tools/Editors/BareED home-directory for the program BareED

This directory contains following files and directories:

- BareED
- BareED.info
- BareED.guide
- BareED.guide.info
- Button.cfg
- catalogs
- catcomp\_files
- defs
- fonts
- images
- knobs
- LastMinute
- LastMinute.info
- ReadMe
- ReadMe.info
- rexx
- source
- tool

If there is now also a directory DAC this one is scanned for the file Dump.  
If this directory is not present, the home-directoy is scanned for the file Dump ←

If this directory is not present, the home directory is scanned for the file ←  
Dump.

If the file Dump is neither to find in the DAC- and home-directory BareED will ←  
fail with the message:

Cannot load the program's code! - File not present?

If the file was found and you have still not set the right margin a ←  
requester appears where you  
have to set it! Characters beyond the entered right margin will not be printed ←  
out!

If you are sure that you know the rightmost character's offset (right margin) ←  
you can enter it. If not,  
enter a huge value, for example 300.

---

A requester appears where the source width and height are displayed in pixel and the destination is displayed as dots (dots = printer pixels).

Now Dump begins to calculate each string line's length. If there is a string line that exceeds your rightmost offset, a requester appears telling so. You have now the chance to abort or to continue calculating string lengths.

In case you continue, some more requester may pop up.

When Dump has rummaged through all string lines a requester appears that tells you how wide the widest string is. Remember the rightmost character's offset for later if you have entered a huge value earlier.

Since we cannot stop here, we click "Okay".

If your set right margin would be lesser than the computed, a requester appears that tells you so. If you agree to continue, click "Okay" to dump the characters. In this case some string lines are truncated to fit onto the concerned page.

If you have entered a huge value only to compute the widest string length, you can now safely quit here.

In case you have set the right margin correct or you want some string lines to be truncated you are now at a point, where a requester shows up that tells you how many pages would be needed to dump these strings. You have another chance to quit here - or you can now start the dump.

Say, that you instruct Dump to dump the string lines onto the printer - somewhat more or less time is gone before the printer will start to work. Once more: You can't modify the archive while Dump is in progress!

The graphical dump is made in a manner so that the right margin you have entered will fit as last character onto the page. This means that basing on your defined area a complete printer-line is used to mirror the string line!

If you need at left and right of the printed area more space choose easily in the System Preferences editor Printer new values for left and right margin. Dump will take them into account when it is going to calculate the dimension for printout.

---

If you want to stop the graphic dump for a while (meanwhile you can speak to others - in case you use a pin-writer - like me!), choose easily "Pause/Continue" in the progress-bar. Later on you can click this button again to continue the dump.

If you want to abort the dump, click the "Abandon" button in the progress-bar.

In addition, you can use a System-monitor to find the task (process) "Dump". Signal him a CTRL-C signal. Dump will stop as soon as possible. You may also use the "BreakTask" command, which can be found within the NDUK package.

Depending on your printer there can be a small confusion:

When a page has been completely filled with the graphic dump and a new page is required, Dump will send an "Eject Page" command to the printer. If your printer itself has recognize that a new page is required, it will "eject the current page" and later on it gets the same instruction from Dump so that an empty page is ejected. This is harmless but annoying and only occurs when the last graphic-dump-line fits exactly to the last position of page!

### 1.3 Developer information

This page is under construction...

First of all, DAC means direct communication with an application - without using Exec-messages!

Any DAC-application runs asynchronous from BareED. BareED is not inhibited while a DAC application is running!

Currently the DAC-interface of BareED is poor - but if there is interest in an expanded interface I will write it.

A DAC application is a standard Amiga-DOS load file (program) with no restrictions in size or hunk-layout other than limited by the Amiga-DOS. This means also - if you use a C-compiler - that you can use small code and data model.

A DAC application will be started from BareED! No other technique is supported or will be in the future! This means that you have to know which process fired up your application. To determine "who was that?" the standard Workbench-start-up-message is used with additional information enclosed.

The field "Name" of the message's node points to the string "BAREED". When you encounter this, you know that BareED has launched your application.

---

In ANSI-C this would cost us these lines:

```
#include <workbench/startup.h>
#include <string.h>

#include <bareed_dac.h>

extern struct WBStartup *WBenchMsg;

struct PseudoMsg *PsMsg;

int main( unsigned int argc, unsigned char **argv)
{
    /* Figure out if we have been started from a CLI surround or from the desktop */
    if ( !WBenchMsg)
        return 30; // Return error, was CLI

    /* Figure out if we have been launched by Workbench or BareED */
    if ( strcmp( WBenchMsg->sm_Message.mn_Node.ln_Name, "BAREED") != NULL)
        return 20; // Return error, was Workbench

    /* Found out that we're running as DAC-application under BareED */
    .....
```

Since we found out that BareED launched us, we can now convert the pointer to the ←  
WBStartup message into  
a PseudoMsg pointer:

```
PsMsg = (struct PseudoMsg *) WBenchMsg;
```

Note: The PseudoMsg is once set up by BareED (when it launched the application) ←  
and the attributes of  
the archive (project) cannot be changed by the user while your DAC ←  
application is still alive,  
except BlockStart and BlockEnd! But- later on by the user newly set ←  
cursor-positions or page  
offsets, the editor window size and a bit more will not be mirrored ←  
by the already gotten  
PseudoMsg and currently BareED does not stop the user from changing ←  
them! Therefore  
pm\_GetAttr () and pm\_ChangeAttr () have been wisely (hey, I'm so clever) ←  
implemented which are  
currently out of order (I'm so lazy).

The PseudoMsg looks like this:

```
struct PseudoMsg
{
    struct WBStartup pm_Startup;          Only readable!
    BPTR pm_Lock;                        Hands off!
    unsigned char *pm_Name;              Hands off!
    unsigned char pm_FileName[108];      Hands off!
    unsigned char pm_Dir[256];           Hands off!
    struct GfxBase *pm_GfxBase;
    struct IntuitionBase *pm_IntuitionBase;
    struct Library *pm_GadToolsBase;
```

```

struct Library *pm_DiskfontBase;
struct Library *pm_AslBase;
struct Library *pm_IconBase;
struct Library *pm_LocaleBase;
struct Library *pm_WorkbenchBase;
void *pm_VisualInfo;      Only read- and useable - don't release it!
struct DrawInfo *pm_DrawInfo;    Only read- and useable - don't release it!
unsigned char *pm_RegionStart;    Start of memory block for letters
unsigned int pm_RegionSize;    Size in bytes (multiple of 16Kb)
unsigned char *pm_TextStart;    First letter
unsigned char *pm_TextEnd;    Last letter
unsigned char *pm_BlockStart;    First letter in block
unsigned char *pm_BlockEnd;    Last letter in block
struct TextAttr *pm_FontAttr;    Font is using this attributes
struct TextFont *pm_Font;    The font itself
struct Window *pm_EdWindow;    The editor surrounding
unsigned int pm_TabWidth;    In pixels
unsigned int pm_TabStops;    A tap stop occurs every 'n'
unsigned int pm_RightMargin;
unsigned char *pm_CharSpace;    Pointer to the character-spaces of the used ←
    font
void (*pm_GetAttr)( struct TagItem *taglist);    Currently NULL (out of order!)
void (*pm_ChangeAttr)( struct TagItem *taglist);    Currently NULL (out of order ←
    !)
void (*pm_BlockInput)( void);
void (*pm_AllowInput)( void);
void (*pm_Tell)( STRPTR str);
unsigned int (*pm_CaseTell)( STRPTR str);
unsigned int (*pm_RequestNumber)( unsigned int initial, STRPTR winname, STRPTR ←
    hailtext, \
    STRPTR gadtext, BOOL zero);
unsigned int (*pm_StrPixelLen)( unsigned char *start, unsigned char *end);
void (*pm_DumpStrLine)( unsigned char *start, unsigned char *end, struct ←
    RastPort *rp, \
    unsigned int x, unsigned int y);
unsigned int (*pm_WidestStrLen)( unsigned char *text, unsigned char *stop, \
    unsigned int (*inform_code)( unsigned int len, unsigned int ←
    line), \
    unsigned int inform);
void (*pm_DumpStrings)( struct RastPort *rp, \
    unsigned int (*dump_code)( unsigned int len, unsigned int ←
    line), \
    unsigned char *text, unsigned char *stop);
void (*pm_FreeProgressBar)( struct ProgressBar *pb);
struct ProgressBar *(*pm_CreateProgressBar)( STRPTR wintitle, STRPTR hail, ←
    STRPTR stop, STRPTR cont, \
    STRPTR cancel);
unsigned int (*pm_PullPBarEvent)( struct ProgressBar *pb);
void (*pm_ChangePBarIndicator)( struct ProgressBar *pb, unsigned int percent, ←
    STRPTR hail);

<<< Following does not work properly yet - so don't use! >>>
void (*pm_TogglePBarGad)( struct ProgressBar *pb);
};

```

Detailed structure description

If you have written a DAC application and you now want to run it under BareED ←  
 you simply press CTRL-D  
 within BareED's editor-window and a file requester will appear where you ←  
 can choose your application,  
 which will afterwards be loaded in and executed.

When a DAC application has crashed, BareED will not get back the sent message ←  
 and therewith BareED will  
 not allow to modify the archive. Since the project is protected against ←  
 modifications BareED isn't able to quit,  
 too.

There is a possibility to normalise BareED:

To do so enter at the CLI-prompt:

```
1> rx "address BAREED.n; reset dacnt"
-     where     n represents the use count
```

This ARExx macro line will set the intern BareED counters to zero!

NOTE:

A DAC application will be fired up with a stack size of 8192 bytes. ←  
 This should be enough for the most  
 programs! You should hold in mind that your task uses BareED functions ←  
 (code) so these functions are  
 re-entrant.

## 1.4 Description

pm\_Startup = a normal workbench start-up-message with the exception that the ←  
 field "Name" of the  
 node structure points to the string "BAREED" and where the field ←  
 priority of the node  
 structure holds this PseudoMessage version (currently 0 = beta)  
 pm\_Lock to pm\_Dir are private, hands off - they are used by the pm\_Startup ←  
 structure

```
pm_GfxBase = library base pointer
pm_IntuitionBase = library base pointer
pm_GadToolsBase = library base pointer
pm_DiskfontBase = library base pointer
pm_AslBase = library base pointer
pm_IconBase = library base pointer
pm_LocaleBase = library base pointer
pm_WorkbenchBase = library base pointer
```

pm\_VisualInfo = pointer to GadTools required info - read- and useable by you - ←  
 but never release it!  
 (never call FreeVisualInfo() on it!)  
 pm\_DrawInfo = pointer to GadTools/Intuition draw-info structure - same rules as ←  
 for VisualInfo!  
 pm\_Region = address storage start

```
pm_RegionSize = amount in bytes of storage
pm_TextStart = address first character in archive
pm_TextEnd = address last character in archive
```

pm\_BlockStart = address first character of a marked block  
 pm\_BlockEnd = last character of this block

pm\_FontAttr = TextAttr structure that is currently used by the editor-window  
 pm\_Font = the already opened TextFont pointer

pm\_EdWindow = pointer to an Intuition engaged window structure used as editor-  
 window

pm\_TabWidth = how many pixel to move to the right to get the next tabulator offset  
 pm\_TabStops = after how many space-characters a new tabulator offset is  
 reached (only valid if  
     using mono-space-fonts - using proportional fonts it's a bit more  
     difficult due to  
     alignment rules)

pm\_RightMargin = amount space-characters used to form the rightmost character  
 offset

pm\_CharSpace = pointer to an array of 256 bytes where each byte is  
 viewed as an index to the  
     LATIN-1 char set and where these bytes will hold the concerned character's  
     width

EXAMPLE:

```
WidthOfSpaceChar = pseudomsg->pm_CharSpace[ 32];
```

```
WidthOfMChar = pseudomsg->CharSpace[ 'M'];
```

```
WidthOfDoubleSChar = pseudomsg->CharSpace[ (UBYTE) 'B'];
```

Note: casting the character is necessary if using characters greater  
 than

    index 127 (unsigned) to ignore the MSB!

    from assembler

```
movea.l _pseudomsg,A0
```

```
movea.l pm_CharSpace(A0),A0
```

```
move.w #'M',D0
```

```
move.b 0(A0,D0.w),D0
```

```
move.w D0,_WidthOfMChar
```

pm\_GetAttr() = pointer to a function that will in the future allow to return  
 the current state of BareED  
 and its project

NOTE: this function must in no way be called for the current  
 versions of BareED

    because pm\_GetAttr () is a NULL-pointer! For later versions,  
     check first if this  
     pointer is non-zero!

pm\_ChangeAttr() = pointer to a function that will in the future allow to  
 change the current attributes of  
 BareED

NOTE: this function must in no way be called for the current  
 versions of BareED

    because pm\_ChangeAttr () is a NULL-pointer! For later versions,  
     check first if  
     this pointer is non-zero!

pm\_BlockInput() = pointer to a function: forbid any modifications through the user  
 pm\_AllowInput() = pointer to function: allow modifications through the user

---

PLEASE: Use pm\_BlockInput() and pm\_AllowInput() wisely. In the most cases it should not be necessary to call these two function since when a DAC application is running, BareED prevents the archive to be modified through ARExx and the user, exception: the newly marking / demarking of text blocks!

pm\_Tell() = pointer to a function: to tell user what is going on  
 pm\_CaseTell() = pointer to a function: to give the user the chance to say "Okay" or "Cancel"  
 pm\_RequestNumber() = pointer to a function: to get a number from the user

pm\_StrPixelLen() = pointer to a function:  
 Get length in pixels a string line takes up where the current attributes of the archive will be taken into account

INPUTS:

start - first character in line  
 end - last character in line (normally Linefeed or zero byte)

RESULTS:

width - in pixels

pm\_DumpStrLine() = pointer to a function:  
 Dump a series of characters to a specified raster port where the current attributes of the archive will be taken into account

WARNING: boundaries are not check - thus you have to ensure that no pixels are drawn beyond the memory region (bit planes)

INPUTS:

Address first and last character in line to dump  
 start - first character in line  
 end - last character in line (normally LineFeed or zero byte) rp - Pointer to raster port where to visualize the characters x - leftmost position to start the render (normally 0)  
 y - topmost position to start the render (normally 0)

RESULTS:

Printed line or none

NOTES:

The y-coordinate is corrected by this function with the TextFont-tf\_Baseline value to ensure that the text is right rendered.  
 This function uses the Graphic-library functions Text() and Move()

pm\_WidestStrLen() = pointer to a function:  
 Get the widest string (in pixels) and inform caller when out of his set range where the current attributes of the archive will be taken into account

INPUTS:

start - address of the character you like to start with  
 stop - at this character (address) WidestStrLen() will stop - if ←  
       not  
       encountered already archive's end  
 inform\_code - routine which is invoked when a line length exceeds your set  
       'inform' range  
       Return TRUE if you want to continue computing line length or  
       FALSE to stop  
 inform - widest string width in pixel you allow without to be informed

## RESULTS:

widest string length in pixels

## NOTES:

inform\_code() may be zero, then your Callback routine is not called  
 Your inform\_code() is called with two stack parameters:  
   1) length in pixels  
   2) actual line number, which is counted on by "start"  
 Your inform\_code() does not need to restore its base-register a4, ←  
       BareED  
 has already done this - but all other non-scratch registers must be ←  
       restored  
 on exit

pm\_DumpStrings() = pointer to a function:

Dump a series of string lines to a raster port where the current attributes ←  
       of the archive  
 will be taken into account

## INPUTS:

rp - raster port - where to render into  
 dump\_code - your function that dump this raster port e. g. to the ←  
       printer  
       RETRUN TRUE to continue with the next line or FALSE to stop  
       PARAMETERS you'll get from DumpStrings:  
       length - pixel length of this string  
       line - line number of the actual line, counted from one  
       to endless  
 start - address of the character you like to start with  
 stop - at this character (address) DumpStrings() will stop - if ←  
       not  
       encountered already archive's end

## RESULTS:

rp - Raster port with visualized and laid out string

## NOTES:

Before you call DumpStrings() or DumpStrLine() you should use ←  
       the  
       appropriate draw mode and pens.  
 The length in pixels you'll get from DumpString() is the original string ←  
       length -  
       perhaps it has been truncated to let this string fit into your raster port.  
 After each dump you should clear the contents of your raster port, e. g. ←  
       using  
       ClearEOF().

You may use standard Bitmaps or foreign if OS 3.0 is at least available.  
 This routine calls DumpStrLine().  
 Your dump\_code() does not need to restore its base-register a4, BareED  
 has already done this - but all other non-scratch registers must be ←  
 restored  
 on exit

pm\_FreeProgressBar = pointer to a function

Free an earlier obtained ProgressBar inclusive the resources used by it

INPUTS:

pb - returned pointer from pm\_CreateProgressBar() that points ←  
 to a  
 ProgressBar structure which only has one useable item: pb\_Window - which  
 points to the window used by this progress-bar

RESULTS:

none

pm\_CreateProgressBar = pointer to a function

Create a window with a progress bar in it. Not more!

INPUTS:

wintitle - String shown as title of the window (this title must be supplied ←  
 !)  
 hail - String shown above of progress bar [(optional parameter)] When  
 used this string must not contain any format arguments! (valid is  
 e. g.: "Completed to")  
 stop - String shown in left gadget [(optional parameter)] (e.g.: "Pause")  
 --- due to a bug in pm\_TogglePBarGad() this string should be  
 set up as follow: "Pause/Continue"  
 cont - String shown in left gadget as alternative text [(optional)] due ←  
 to  
 a bug in pm\_TogglePBarGad() this text will never be displayed  
 - so there is no necessity to supply it  
 cancel - String shown in right gadget [(optional)]  
 When you can only do "Pause/Continue" you must use this  
 entry instead of "Stop"

RESULTS:

pb - pointer to a ProgressBar structure or zero if something went wrong

pm\_PullPBarEvent = pointer to a function

Let this function do the necessary things to parse and interpret ←  
 messages sent by  
 Intuition/GadTools

INPUTS:

pb - pointer to a ProgressBar structure

RESULTS:

ID -0 = if this message has no meaning for you  
 -1 = right gadget (or centred - if a single) has been clicked by  
 user  
 -2 = left gadget (stop/cont) by user clicked

pm\_TogglePBarGad = pointer to a function

---

Change state (text) in left gadget from either Stop to Cont or from Cont to Stop. ↔

pm\_TogglePBarGad performs only the action when all three gadgets texts are supplied. ↔

INPUTS:

pb - pointer to a ProgressBar structure

RESULTS:

none

BUGS:

does currently not work well

---