

Inter-Office Memorandum

To Mesa Users

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From Sandman

Location Palo Alto

Subject Basic Mesa

Organization SDD/SD/DE

XEROX

XEROX SDD ARCHIVES
I have read and understood

Filed on: [Maxcl]<Mesa-Doc>BasicMesa.bravo

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Basic Mesa

Basic Mesa is an experimental Mesa system that allows users more flexibility in building their own systems. It is designed for those groups that don't need the full capabilities of the current Mesa window package or want to supply their own. It has a command line interpreter that allows the user to load BCDs onto the Basic Mesa system. The facilities it does and does not contain as well as its command line interpreter are described in further detail below. To obtain Basic Mesa, retrieve, the files [Maxcl]<Mesa>BasicMesa.image and [Maxcl]<Mesa>BasicMesa.symbols.

Facilities Included

Basic Mesa contains the following facilities: modules that provide the runtime facilities of the language such as the Signaller and the trap handlers; those modules used to access files on the disk; Swapper, Segments, Files, Directory, Disk Descriptor, and Streams; the current process mechanism, the string package, the free storage package and a nub for the debugger; and the loader and its associated modules. It also contains the keyboard modules since the interrupt handler for the keyboard must be resident.

Facilities Not Included

Basic Mesa contains no facilities for using the display. For those groups that wish to use Basic Mesa and do not have their own display package, the existing Mesa Display package (Rectangles, DisplayStreams, Menus, Windows, and StreamIO) has been packaged into a BCD (described below). For those groups that need a simple teletype-like display and do not want to pay for the full generality of the current Mesa display package, a simple display has been implemented (see [Maxcl]<Johnsson>SimpleDisplay.bravo). Basic Mesa does not contain facilities for making Image files. However, a configuration contains those modules required to make image files (described below). Note that Basic Mesa and the display and image making packages are experimental.

Command Interpreter

The command interpreter for Basic Mesa allows users to load and start an arbitrary number of BCDs. The command line syntax is:

Mesa BasicMesa.image[/sw] file1[/sw] [file2[/sw]] . . .

where [] denotes the optional part. The valid switches are:

```

/d -- invoke the debugger after loading the BCD but before starting it.
/s -- start the BCD (default if non-null control module).
/-s -- do not start the BCD.

```

The /d switch is the only switch valid for BasicMesa.image and will invoke the debugger before any BCDs are loaded. Each BCD is loaded and started (unless -s switch appears) in turn. Note that nothing can be started for a particular BCD if it has no control module. The default extension for a filename is ".bcd". No error messages appear if there are any problems with loading or starting a BCD; all signals propagate to the debugger.

ImageMaker Configuration

The ImageMaker configuration consists of those modules that are required to make an image file of a system built on top of Basic Mesa. The configuration is a simple one consisting of five modules, fifteen imports and three exports. The high number of imports is required by the close interaction with the system needed to make image files. The configuration is shown below:

```

ImageMaker: CONFIGURATION
IMPORTS BFSDefs, BootDefs, CoreSwapDefs, DirectoryDefs, DiskDefs,
      DiskKDDefs, FrameDefs, ImageDefs, LoaderBcdUtilDefs, LoadStateDefs,
      MiscDefs, SegmentDefs, StreamDefs, StringDefs, SystemDefs
EXPORTS BcdTabDefs, BcdTableDefs, ImageDefs =
BEGIN
  BcdAllocator;
  BcdTab;
  BcdMerge;
  MakeImageUtilities;
  MakeImage;
END.

```

No control module is needed; all modules get started by the START Trap. The user program should IMPORT ImageDefs and call MakeImage (or MakeUnMergedImage).

The configuration may be used in several ways. It may be loaded as a separate BCD or be bound into a single BCD with the rest of the system being built. The first way makes the configuration for the user system simpler since it doesn't need to list all the IMPORTS required by the ImageMaker. However the second way may save memory space since all the global frames would be allocated in one segment. The ImageMaker requires 500 words for global frames, so normally the first way is the best.

DisplayPackage Configuration

The DisplayPackage configuration consists of those modules that implement the current Mesa display facilities. The configuration is shown below:

```

DisplayPackage: CONFIGURATION

```

```

IMPORTS ImageDefs, MiscDefs, SegmentDefs, StreamDefs, StringDefs, SystemDefs
EXPORTS IODefs, MenuDefs, RectangleDefs, Rectangles, StreamDefs,
  WindowDefs, Windows =
  BEGIN
  Rectangles;
  Display;
  StreamIO;
  Menus;
  Windows;
  END.

```

No control module is used, however a strict starting sequence must be used. The user should start the DisplayPackage by writing:

```

IODefs: FROM "iodefs",
Rectangles: FROM "rectangles",
Windows: FROM "windows";

  IMPORTS . . . IODefs, Rectangles, Windows . . . ;
  . . .

  PagesForBitmap: CARDINAL = 40;
  WordsPerLine: CARDINAL = 30;
  TypeScript: STRING = "Mesa.Typescript.";
  . . .

  START Rectangles[PagesForBitmap, WordsPerLine];
  START Windows[TypeScript];
  START IODefs.StreamIO[NIL, NIL];

```

The above parameters will produce the standard size bitmap and typescript file. The DisplayPackage requires 472 words for global frames; it may be loaded the same ways as the ImageMaker configuration.

Comments

BasicMesa, ImageMaker and DisplayPackage are experimental facilities, and as such are subject to change. We anticipate that the only change make to them are those requested by users.

The inclusion of the keyboard and keystream facilities into Basic Mesa was an arbitrary decision. They were included so that users who used the standard keyboard package would not have to go through a bunch of gyrations in order to get the interrupt code locked into low memory. If most users of Basic Mesa provide their own keyboard handler as well as display package, then the standard keyboard package can be removed.

One of the main benefits of Basic Mesa is that the data segments containing frames adjoin the permanent system data segments. In the current system, a forty page bitmap separates them so that systems that change the bitmap have a sandbar in memory before anything has been done.

The Mesa Group would appreciate feedback on these and any other facilities that would be useful in making custom systems.

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