NAME

xmemmon – display Icon allocation history under X-windows

SYNOPSIS

xmemmon [options] file

DESCRIPTION

xmemmon displays an allocation history file produced by the Icon interpreter. An animated window representing the contents of memory shows the allocation and garbage collection actions recorded in the file. The display is designed for a color screen but xmemmon uses textures to represent colors if run in monochrome.

Action stops for acknowledgement at certain *pausepoints*. The RUN button on the display, the leftmost mouse button, or a carriage return acknowledges a pause. A g typein clears all pausepoints.

The STOP button, the center mouse button, or the space bar causes xmemmon to pause at any time. During a pause the STEP button, center mouse button, or space bar causes a "single-step" display of the next memory block.

The RESTART button or an r typein rewinds the history file and pauses; then the history file is replayed from the beginning.

The QUIT button or a q, DEL, or ˆC exits xmemmon.

The rightmost mouse button pulls down a menu controlling the regions that are displayed and the pausepoints that are active. Changes to the region list are not reflected until after the next garbage collection. loop mode and showMarking (both described below) can also be changed.

OPTIONS

xmemmon accepts the standard set of X-window command options such as –display, –geometry, and –font. Colors are best controlled using a color specification file as described below.

Several additional options are particular to xmemmon. These may be abbreviated to a unique prefix or to the single character indicated:

–regions *regions* (or –r)
> Display the indicated memory regions:
> f   static (fixed) region
> s   string region
> b   block region
> The default is –regions sb.

–pausePoints *when* (or –p)
> Pause the display at the indicated points:
> f   memory full (beginning of garbage collection)
> a   showing active blocks after marking
> g   showing garbage remaining after marking
> c   after compaction (end of garbage collection)
> p   explicit mmpause() calls
> r   after a restart
> n   never
> The default is –pause fagcpr.

–showMarking (or –m)
> Run through the marking phase even when not pausing to display the results. Normally, marking is bypassed if neither g or a is selected as a pausepoint.

–loop (or –l)
> Loop repeatedly through the history without pausing. This overrides other options to set –pause n and –showMarking.

–title *title* (or –t)

Set the display title. The default is the input file name.

—colorSpec *filename* (or **—c**)

Use an alternate color specification file (see below).

—width *n* (or **—w**)

Set the width of the memory subwindow to *n* pixels.

—height *n* (or **—h**)

Set the height of the memory subwindow to *n* pixels.

—granularity *n* (or **—b**)

Represent *n* bytes of memory in each displayed pixel. The default is 4.

—textHeight *n* (or **—L**)

Make the legend and status lines *n* pixels high.

—rowHeight *n* (or **—M**)

Limit the memory region lines to a maximum of *n* pixels in height.

—skipGC *n* (or **—g**)

Skip to the end of the *n*th garbage collection before displaying anything.

RESOURCES

xmemmon can be customized through the X Resource Manager, for instance by placing values in an
.Xdefaults file. The most useful resources are those corresponding to command options, such as:

xmemmon.colorSpec
xmemmon.font
xmemmon.geometry
xmemmon.granularity
xmemmon.pausePoints
xmemmon.regions

COLOR SPECIFICATIONS

A *color specification file* changes some or all of the standard display colors. It is named by the
MMCOLORS environment variable, xmemmon.colorSpec resource, or —colorSpec command option.

Lines in the file contain two whitespace-separated fields: a label and a value. The label matches either a
block type shown in the legend or one of these additional keywords:

background	background
bsep	block separator
ssep	string separator
marked	marked block
unmarked	unmarked block (when showing active data)
status	status message
prompt	prompt message
title	title field
regions	region sizes

The value is a set of digits specifying a color; color names are not allowed. The possible formats are:

rgb	three octal digits
#rgb	three hexadecimal digits
#rrggbb	three pairs of hexadecimal digits
rrrrr,ggggg,bbbbb	three decimal values between 0 and 65535

The three components specify red, green, and blue values in that order; a minimum value is off and a maximum value is full on. Some examples:

000	#000	#000000	0,0,0	(black)
777	#FFF	#ffffff	65535,65535,65535	(white)
020	#040	#002c00	0,0,20000	(dark green)
447	#99f	#8F8FFF	40000,40000,65535	(light blue)

Extra fields on a specification line are ignored and may be used for comments. Blank lines are ignored, as are lines beginning with '#'.

CAVEATS

If the colormap is not changeable, there can be no pause to show active data.

A few extra single-steps may be needed around pausepoints.

xmemmon is limited to three concurrent executions on typical 8-bit displays due to its need for private color cells.

SEE ALSO

The Visualization of Dynamic Memory Management in the Icon Programming Language, Ralph E. Griswold and Gregg M. Townsend, TR 89-30, Department of Computer Science, The University of Arizona, 1989.

The Icon Memory Monitoring System, Gregg M. Townsend, The Univ. of Arizona Icon Project Document IPD148, 1990.