

Extended Visual Information Extension X Project Team Standard

Peter Daifuku, Silicon Graphics, Inc.

Extended Visual Information Extension: X Project Team Standard

by Peter Daifuku

Version 1.0

Copyright © 1986-97 The Open Group

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the Software), to use the Software without restriction, including, without limitation, the rights to copy, modify, merge, publish, distribute and sublicense the Software, to make, have made, license and distribute derivative works thereof, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and the following permission notice shall be included in all copies of the Software:

THE SOFTWARE IS PROVIDED AS IS, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE OPEN GROUP BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER USEABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF, OR IN CONNECTION WITH THE SOFTWARE OR THE USE OF OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of The Open Group shall not be used in advertising or otherwise to promote the use or other dealings in this Software without prior written authorization from The Open Group.

X Window System is a trademark of The Open Group.

Table of Contents

1. Introduction	1
2. Goals	2
3. Requests	3
4. Events and Errors	5
5. Changes to existing protocol.	6
6. Encoding	7
7. C Language Binding	8

Chapter 1. Introduction

EVI (Extended Visual Information extension) allows a client to determine information about core X visuals beyond what the core protocol provides.

Chapter 2. Goals

As the X Window System has evolved, it has become clear that the information returned by the core X protocol regarding Visuals is often insufficient for a client to determine which is the most appropriate visual for its needs. This extension allows clients to query the X server for additional visual information, specifically as regards colormaps and framebuffer levels.

This extension is meant to address the needs of pure X clients only. It is specifically and purposefully not designed to address the needs of X extensions. Extensions that have an impact on visual information should provide their own mechanisms for delivering that information. For example, the Double Buffering Extension (DBE) provides its own mechanism for determining which visuals support double-buffering.

Chapter 3. Requests

GetVersion

client_major_version: CARD8

client_minor_version: CARD8

=>

server_major_version: CARD8

server_minor_version: CARD8

If supplied, the *client_major_version* and *client_minor_version* indicate what version of the protocol the client wants the server to implement. The server version numbers returned indicate the protocol this extension actually supports. This might not equal the version sent by the client. An implementation can (but need not) support more than one version simultaneously. The *server_major_version* and the *server_minor_version* are a mechanism to support future revisions of the EVI protocol that may be necessary. In general, the major version would increment for incompatible changes, and the minor version would increment for small upward-compatible changes. Servers that support the protocol defined in this document will return a *server_major_version* of one (1), and a *server_minor_version* of zero (0).

GetVisualInfo

visual_list: LISTofVISUALID

=>

per_visual_info: LISTofVISUALINFO

where:

VISUALINFO: [core_visual_id: VISUALID

screen: CARD8

level: INT8

transparency_type: CARD8

unused: CARD8

transparency_value: CARD32

min_hw_colormaps: CARD8

max_hw_colormaps: CARD8

num_colormap_conflicts: CARD16

colormap_conflicts: LISTofVISUALID]

- level is 0 for normal planes, > 0 for overlays, < 0 for underlays.
- transparency_type is 0 for none, 1 for transparent pixel, 2 for transparent mask.
- transparency_value: value to get transparent pixel if transparency supported.
- min_hw_colormaps: minimum number of hardware colormaps backing up the visual.
- max_hw_colormaps: maximum number of hardware colormaps backing up the visual.
(architectures with static colormap allocation/reallocation would have min = max)
- num_colormap_conflicts: number of elements in colormap_conflicts.

- `colormap_conflicts`: list of visuals that may conflict with this one. For example, if a 12-bit colormap is overloaded to support 8-bit visuals, the 8-bit visuals would conflict with the 12-bit visuals.

Chapter 4. Events and Errors

No new events or errors are defined by this extension.

Chapter 5. Changes to existing protocol.

None.

Chapter 6. Encoding

The name of this extension is "Extended-Visual-Information".

The conventions used here are the same as those for the core X11 Protocol Encoding.

GetVersion

1	CARD8	opcode
1	0	EVI opcode
2	2	request length
2	CARD16	client_major_version
2	CARD16	client_minor_version
=>		
1	1	reply
1		unused
2	CARD16	sequence number
4	0	length
2	CARD16	server_major_version
2	CARD16	server_minor_version
20		unused

GetVisualInfo

1	CARD8	opcode
1	1	EVI opcode
2	2+n	request length
4	CARD32	n_visual
4n	CARD32	visual_ids
=>		
1	1	reply
1		unused
2	CARD16	sequence number
4	n	length
4	CARD32	n_info
4	CARD32	n_conflicts
16		unused
16n	LISTofVISUALINFO	items

VISUALINFO

4	VisualID	core_visual_id
1	INT8	screen
1	INT8	level
1	CARD8	transparency_type
1	CARD8	unused
4	CARD32	transparency_value
1	CARD8	min_hw_colormaps
1	CARD8	max_hw_colormaps
2	CARD16	num_colormap_conflicts

Chapter 7. C Language Binding

The C functions provide direct access to the protocol and add no additional semantics. For complete details on the effects of these functions, refer to the appropriate protocol request, which can be derived by deleting Xevi at the start of the function. All functions that have return type Status will return nonzero for success and zero for failure.

The include file for this extension is: < X11/extensions/XEVI.h>.

```
Bool      XeviQueryVersion(    *display,          *major_version_return,
                              *minor_version_return);
```

<i>display</i>	Specifies the connection to the X server.
<i>major_version_return</i>	Returns the major version supported by the server.
<i>minor_version_return</i>	Returns the minor version supported by the server.

XeviQueryVersion sets *major_version_return* and *minor_version_return* to the major and minor EVI protocol version supported by the server. If the EVI library is compatible with the version returned by the server, it returns nonzero. If dpy does not support the EVI extension, or if there was an error during communication with the server, or if the server and library protocol versions are incompatible, it returns zero. No other Xevi functions may be called before this function. If a client violates this rule, the effects of all subsequent Xevi calls that it makes are undefined.

To get the extended information for any subset of visuals use XeviGetVisualInfo.

```
int XeviGetVisualInfo( *display, *visual, n_visual, **evi_return,
                      *n_info_return);
```

<i>display</i>	Specifies the connection to the X server.
<i>visual</i>	If NULL, then information for all visuals of all screens is returned. Otherwise, a pointer to a list of visuals for which extended visual information is desired.
<i>n_visual</i>	If 0, then information for all visuals of all screens is returned. Otherwise, the number of elements in the array <i>visual</i> .
<i>evi_return</i>	Returns a pointer to a list of <i>ExtendedVisualInfo</i> . When done, the client should free the list using <i>XFree</i> .
<i>n_info_return</i>	Returns the number of elements in the list of <i>ExtendedVisualInfo</i> .

XeviGetVisualInfo returns a list of *ExtendedVisualInfo* structures that describe visual information beyond that supported by the core protocol. This includes layer information relevant for systems supporting overlays and/or underlay planes, and information that allows applications better to determine the level of hardware support for multiple colormaps. XeviGetVisualInfo returns Success if successful, or an X error otherwise.