VEX
Video Extension to X Protocol Encoding
Version 5.9

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1. Encoding

Please refer to the X11 Protocol Encoding document as this document uses conventions established there.

The name of this extension is ‘‘VEX’’.

New types

VIDEOIN: CARD32

VIDEOOUT: CARD32

VIDEODEVICE: CARD32

VIDEOIO: VIDEOIN or VIDEOOUT

VIDEOID: VIDEOIN or VIDEOOUT or VIDEODEVICE

VREFERENCE: CARD32

TRANSITION

4	VIDEOID		source
4	VIDEOID		destination
4	CARD32		matrix1
4	CARD32		matrix2

CONTROL

4	ATOM		atom
4	VIDEOID or VREFERENCE		id
1			type
	0	Input	
	1	Output	
	2	Device	
1			setting-format
	8	LISTofINT8	
	16	LISTofINT16	
	32	LISTofINT32	
1			description-format
	8	LISTofINT8	
	16	LISTofINT16	
	32	LISTofINT32	
1			unused
4	CARD32		setting-length
4	n		description-length
n	LISTofINT{8|16|32}		description-data
p		unused, (p = pad(n))	

SETTING

4	ATOM		atom
4	VIDEOID		id
1			format
	8	LISTofINT8	
	16	LISTofINT16	
	32	LISTofINT32	
3			unused
4	n		length
n	LISTofINT{8|16|32}		value
p		unused, (p = pad(n))	

FRACTION

4	INT32	numerator	
4	INT32	denominator	

FRACTIONRANGE

4	INT32		num-base
4	INT32		num-inc
4	INT32		num-limit
4	INT32		denom-base
4	INT32		denom-inc
4	INT32		denom-limit
1			num_type
	0	Geometric	
	1	Linear	
1			denom_type
	0	Geometric	
	1	Linear	
2			unused

RECTANGLERANGE

8	RECTANGLE		base
8	RECTANGLE		limit
2	INT16		x-inc
2	INT16		y-inc
2	CARD16		width-inc
2	CARD16		height-inc
1			type
	0	Geometric	
	1	Linear	
3			unused

PLACEMENT

8	FRACTION	frame-rate
28	RECTANGLERANGE	source
28	RECTANGLERANGE	destination
20	FRACTIONRANGE	x-scale
20	FRACTIONRANGE	y-scale
1	BOOL	identity-aspect
3		unused

VIDEOGEOMETRY

8	FRACTION	signal-frame-rate
8	FRACTION	signal-field-rate
2	CARD16	signal-width
2	CARD16	signal-height
2	CARD16	concurrent-use
2		unused
4	VREFERENCE	reference-id
4	n	number of placements
104n	LISTofPLACEMENT	placement

RENDERMODEL

1	CARD8	depth
1	BOOL	opaque
2		unused
4	VISUALID	visual-id
4	CARD32	red-mask
4	CARD32	green-mask
4	CARD32	blue-mask

OWNER

4	WINDOW	wid
4	VIDEOID	vid

Requests

QueryVideo

1	CARD8		opcode
1	5		video opcode
2	2		request length
4	WINDOW		wid

=>

1	1		Reply
1			unused
2	CARD16		sequence number
4			length
1	CARD8		screen
1	CARD8		input-overlap
1	CARD8		capture-overlap
1	CARD8		io-overlap
4	TIMESTAMP		timestamp
1	CARD8		number of video-depths
1	k		number of allowed-depths
1	l		number of vin, inattr, and clip-sizes
1	m		number of vout, and outattr
1	n		number of vdev
3		unused	
4	w		number of device-controls
4	x		number of adjacency-matrices
4	z		number of transitions
j	LISTofDEPTH		video-depths
	6	VideoColor	
	8	VideoGray	
20k	LISTofRENDERMODEL		allowed-depths
4n	LISTofVIDEODEV		vdev
p	LISTofVIDEOGEOMETRY		inattr
q	LISTofVIDEOGEOMETRY		outattr
(l*k)	LISTofCARD8		video-input-models
	1	VideoWindow	
	2	VideoPixmap	
r		unused, (r = pad(l*k))	
(m*k)		LISTofCARD8	video-output-models
	1	VideoWindow	
	2	VideoPixmap	
	4	VideoComposite	
s		unused, (s = pad(m*k))	
32w	LISTofCONTROL		videoid-controls
8l	LISTofRECTANGLE		clip-size
2x(n+l)(n+m)	LISTofLISTofCARD8		adjacency-matrices
	0	NotConnected	
	255	Connected	
	1-254	NExclusive	
y		unused, (y = pad(x(n+l)(n+m)))	
16z	LISTofTRANSITION		transitions

CreateVideo

1	CARD8		opcode
1	4		video opcode
2	3		request length
4	VIDEOIO		id
4	VREFERENCE		reference

RenderVideo

1	CARD8		opcode
1	7		video opcode
2	8		request length
4	VIDEOIN		source
4	DRAWABLE		destination
2	INT16		src-x
2	INT16		src-y
2	INT16		dest-x
2	INT16		dest-y
2	CARD16		src-width
2	CARD16		src-height
2	CARD16		dest-width
2	CARD16		dest-height
1	BOOL		full-motion
1	CARD8		priority
1			subwindow-mode
	0	ClipByChildren	
	1	IncludeInferiors	
1			unused

CaptureGraphics

1	CARD8		opcode
1	0		video opcode
2	9		request length
4	DRAWABLE		source
4	VIDEOOUT		destination
4	COLORMAP		cmap
2	INT16		src-x
2	INT16		src-y
2	INT16		dest-x
2	INT16		dest-y
2	CARD16		src-width
2	CARD16		src-height
2	CARD16		dest-width
2	CARD16		dest-height
1	BOOL		full-motion
1	CARD8		priority
1			subwindow-mode
	0	ClipByChildren	
	1	IncludeInferiors	
1			unused

StopVideo

1	CARD8	opcode
1	9	video opcode
2	2+n	request length
1	BITMASK	action
	#x01 Render	
	#x02 Capture	
3	unused	
4n	LISTofDRAWABLE	idlist

QueryVideoControls

1	CARD8	opcode
1	6	video opcode
2	2+n	request length
4	VIDEOID	vid
4n	LISTofATOM	control-list

=>

1	1	Reply
1		unused
2	CARD16	sequence number
4	n	length
4	m	number of settings
20		unused
n	LISTofSETTING	settings

ChangeVideoControls

1	CARD8	opcode
1	3	video opcode
2	2 +n	request length
4	m	number of settings
n	LISTofSETTING	setting

ChangeConnectivity

1	CARD8	opcode
1	1	video opcode
2	6	request length
1	CARD8	screen
1	BOOL	connect
2	unused	
4	TIMESTAMP	time
4	CARD32	matrix
4	CARD32	source
4	CARD32	destination

ChangeOwnership

1	CARD8	opcode
1	2	video opcode
2	1 + 8n	request length
8n	LISTofOWNER	owners

SelectVideoEvents

1	CARD8	opcode
1	8	video opcode
2	3	request length
4	CARD32	id
4	CARD32	mask

Events

VideoConnectivityState

1	CARD8		type (5 + extension event base)
1		unused	
2	CARD16		sequence number
4	CARD32		screen
4	CARD32		source
4	CARD32		destination
4	CARD32		matrix
4	TIMESTAMP		time
2	CARD16		count
2	CARD16		change
	0	NotConnected	
	1	Matrix0	
	255	Connected	
4	CARD32		sequence

VideoChange

1	CARD8		type (4 + extension event base)
1		unused	
2	CARD16		sequence number
4	CARD32		screen
4	CARD32		vdev
4	TIMESTAMP		time
1			state
	0	Success	
	1	Fail	
15			unused

VideoControl

1	CARD8		type (0 + extension event base)
1			state
	0	Success	
	1	Fail	
	2	Denied	
2	CARD16		sequence number
4	VIDEOID		vid
4	ATOM		atom
4	TIMESTAMP		time
16			specified by individual controls

VideoViolation

1	CARD8		type (1 + extension event base)
1		unused	
2	CARD16		sequence number
4	DRAWABLE		id
4	VIDEOIO		vid
4	TIMESTAMP		time
2	BITMASK		action (has n bits set to 1)
	#x0001 Scale		
	#x0002 Placement		
	#x0004 Clip		
	#x0008 Overlap		
1			state
	0	Success	
	1	Fail	
	2	Subset	
13			unused

VideoSync

1	CARD8		type (2 + extension event base)
1		unused	
2	CARD16		sequence number
4	DRAWABLE		id
4	VIDEOIO		vid
4	TIMESTAMP		server time
1			state
	0	Acquired	
	1	Lost	
15			unused

VideoOverride

1	CARD8		type (3 + extension event base)
1		unused	
2	CARD16		sequence number
4	DRAWABLE		id
4	VIDEOIO		vid
4	TIMESTAMP		server time
16			unused

VideoRequest

1	CARD8	type (6 + extension event base)
1		unused
2	CARD16	sequence number
4	CARD32	src
4	CARD32	dst
4	CARD32	cmap
2	CARD16	srcx
2	CARD16	srcy
2	CARD16	dstx
2	CARD16	dsty
2	CARD16	src-width
2	CARD16	src-height
2	CARD16	dst-width
2	CARD16	dst-height

VideoRequest (addendum)

1	CARD8		type (7 + extension event base)
1			unused
2	CARD16		sequence number
4	CARD32		time
1			request
	0	Render	
	1	Capture	
1	BOOL		redirect
1	BOOL		full-motion
1	CARD8		priority
1			subwindow-mode
	0	ClipByChildren	
	1	IncludeInferiors	
19			unused