B

Service Class

Full

The full XIE protocol is deemed sufficient to rendering and displaying bitonal, gray-scale, and color images on an X server. ***Full*** XIE encompasses everything in this document.

DIS

The **D**ocument **I**maging **S**ubsets (**DIS**) targeted at the viewing of compressed, bitonal documents on displays that might not otherwise have the resources for the full XIE protocol. ***DIS*** provides a minimal set of primitives for manipulating ***Constrained***, ***SingleBand*** data and differs from ***Full*** XIE in the following ways:

- Only **LUT**, **Photomap**, **Photoflo**, and **Photospace** resources are supported.
- **ColorList** and **ROI** resources are not supported.
- Only **Geometry** and **Point** process elements are supported.
- Restricting processing via a **ProcessDomain** is not supported.
- ***TripleBand*** data is not supported.
- Image data is always ***Constrained*** and is limited to $2^{max\text{-}depth}$ levels, where *max-depth* is the depth of the deepest `DRAWABLE` supported by the server.
- The ***Decode_JPEG-Baseline*** technique is optional (rather than required).

Typical ***DIS*** applications will use relatively simple **Photoflo**s that import image data, apply a geometric transformation, and export the result to a `DRAWABLE` for display. Figure B-1 summarizes the import, process, and export elements that are provided in ***DIS***:

Sources	**Operators**	**Destinations**
ImportDrawable	Geometry	ExportDrawable
ImportDrawablePlane	Point	ExportDrawablePlane
ImportLUT		ExportLUT
ImportClientLUT		ExportClientLUT
ImportPhotomap		ExportPhotomap
ImportClientPhoto		ExportClientPhoto

Figure B-1 *DIS* sources, operators, and destinations

Service Class Summary

The following tables summarize the service classes to which each item in the XIE protocol belongs.

For some XIE types, where a list of alternative values is defined, some of the alternative values are required for a particular service class, while others are not. In these cases, the alternative values are itemized. If all items of a type are required or none are, the type itself is either required or excluded. Alternative techniques are listed separately in Table B-2.

Table B-1 Types itemized by ServiceClass

Type	***Full***	***DIS***
XieTypAlignment	**required**	**required**
XieTypArithmeticOp	**required**	*excluded*
XieTypColorAllocTechnique	**required**	*excluded*
XieTypColorList	**required**	*excluded*
XieTypCompareOp	**required**	*excluded*
XieTypConstant	**required**	**required**
XieTypConstrainTechnique	**required**	*excluded*
XieTypCovertFromRGBTechnique	**required**	*excluded*
XieTypCovertToRGBTechnique	**required**	*excluded*
XieTypConvolveTechnique	**required**	*excluded*
XieTypDataClass	**required**	**required**
XieValSingleBand	**required**	**required**
XieValTripleBand	**required**	*excluded*
XieTypDataStream	**required**	**required**
XieTypDataType	**required**	**required**
XieTypDecodeTechnique	**required**	**required**
XieTypDitherTechnique	**required**	*excluded*
XieTypEncodeTechnique	**required**	**required**
XieTypExecutable	**required**	**required**
XieTypExportNotify	**required**	**required**
XieTypExportState	**required**	**required**
XieTypFloat	**required**	**required**
XieTypGamutTechnique	**required**	*excluded*
XieTypGeometryTechnique	**required**	**required**
XieTypHistogramData	**required**	*excluded*
XieTypHistogramShape	**required**	*excluded*
XieTypInterleave	**required**	**required**
XieTypLevels	**required**	**required**
XieTypLUT	**required**	**required**
XieTypMathOp	**required**	*excluded*
XieTypMatrix	**required**	*excluded*
XieTypOrientation	**required**	**required**
XieTypPhotoElement	**required**	**required**
XieTypPhotoflo	**required**	**required**
XieTypPhotofloOutcome	**required**	**required**
XieTypPhotofloState	**required**	**required**
XieTypPhotomap	**required**	**required**
XieTypPhotospace	**required**	**required**
XieTypPhototag	**required**	**required**
XieTypProcessDomain	**required**	**required**
XieTypRectangle	**required**	*excluded*
XieTypROI	**required**	*excluded*

Table B-1 Types itemized by ServiceClass (continued)

Type	***Full***	***DIS***
XieTypServiceClass	**required**	**required**
XieValFull	**required**	*excluded*
XieValDIS	**required**	**required**
XieTypTechniqueGroup	**required**	**required**
XieValDefault	**required**	**required**
XieValAll	**required**	**required**
XieValColorAlloc	**required**	*excluded*
XieValConstrain	**required**	*excluded*
XieValConvertFromRGB	**required**	*excluded*
XieValConvertToRGB	**required**	*excluded*
XieValConvolve	**required**	*excluded*
XieValDecode	**required**	**required**
XieValDither	**required**	*excluded*
XieValEncode	**required**	**required**
XieValGamut	**required**	*excluded*
XieValGeometry	**required**	**required**
XieValHistogram	**required**	*excluded*
XieValWhiteAdjust	**required**	*excluded*
XieTypTechniqueRec	**required**	**required**
XieTypTile	**required**	*excluded*
XieTypTripletof	**required**	**required**
XieTypWhiteAdjustTechnique	**required**	*excluded*

Table B-2 Techniques itemized by ServiceClass

Technique	***Full***	***DIS***
XieValColorAlloc_AllocAll	optional	*excluded*
XieValColorAlloc_Match	optional	*excluded*
XieValColorAlloc_Requantize	optional	*excluded*
XieValConstrain_ClipScale	**required**	*excluded*
XieValConstrain_HardClip	**required**	*excluded*
XieValConvertFromRGB_CIELab	**required**	*excluded*
XieValConvertFromRGB_CIEXYZ	**required**	*excluded*
XieValConvertFromRGB_YCbCr	**required**	*excluded*
XieValConvertFromRGB_YCC	**required**	*excluded*
XieValConvertToRGB_CIELab	**required**	*excluded*
XieValConvertToRGB_CIEXYZ	**required**	*excluded*
XieValConvertToRGB_YCbCr	**required**	*excluded*
XieValConvertToRGB_YCC	**required**	*excluded*
XieValConvolve_Constant	**required**	*excluded*
XieValConvolve_Replicate	optional	*excluded*
XieValDecode_UncompressedSingle	**required**	**required**
XieValDecode_UncompressedTriple	**required**	*excluded*
XieValDecode_CCITT-G31D	**required**	**required**
XieValDecode_CCITT-G32D	**required**	**required**
XieValDecode_CCITT-G42D	**required**	**required**
XieValDecode_JPEG-Baseline	**required**	optional
XieValDecode_JPEG-Lossless	optional	optional
XieValDecode_TIFF-2	optional	optional
XieValDecode_TIFF-PackBits	optional	optional
XieValDither_ErrorDiffusion	optional	*excluded*
XieValDither_Ordered	optional	*excluded*
XieValEncode_ServerChoice	**required**	**required**
XieValEncode_UncompressedSingle	**required**	**required**
XieValEncode_UncompressedTriple	**required**	*excluded*
XieValEncode_CCITT-G31D	optional	optional
XieValEncode_CCITT-G32D	optional	optional
XieValEncode_CCITT-G42D	optional	optional
XieValEncode_JPEG-Baseline	optional	optional
XieValEncode_JPEG-Lossless	optional	optional
XieValEncode_TIFF-2	optional	optional
XieValEncode_TIFF-PackBits	optional	optional
XieValGamut_None	**required**	*excluded*
XieValGamut_ClipRGB	**required**	*excluded*
XieValGeometry_Antialias	**required**	**required**
XieValGeometry_AntialiasByArea	optional	optional
XieValGeometry_AntialiasByLowpass	optional	optional
XieValGeometry_BilinearInterpolation	optional	optional
XieValGeometry_Gaussian	optional	optional
XieValGeometry_NearestNeighbor	**required**	**required**
XieValHistogram_Flat	**required**	*excluded*
XieValHistogram_Gaussian	**required**	*excluded*
XieValHistogram_Hyperbolic	**required**	*excluded*
XieValWhiteAdjust_None	**required**	*excluded*
XieValWhiteAdjust_CIELabShift	optional	*excluded*

Table B-3 Requests itemized by ServiceClass

Requests	***Full***	***DIS***
XieReqQueryImageExtension	**required**	**required**
XieReqQueryTechniques	**required**	**required**
XieReqCreateColorList	**required**	*excluded*
XieReqDestroyColorList	**required**	*excluded*
XieReqPurgeColorList	**required**	*excluded*
XieReqQueryColorList	**required**	*excluded*
XieReqCreateLUT	**required**	**required**
XieReqDestroyLUT	**required**	**required**
XieReqCreatePhotomap	**required**	**required**
XieReqDestroyPhotomap	**required**	**required**
XieReqQueryPhotomap	**required**	**required**
XieReqCreateROI	**required**	*excluded*
XieReqDestroyROI	**required**	*excluded*
XieReqCreatePhotospace	**required**	**required**
XieReqDestroyPhotospace	**required**	**required**
XieReqExecuteImmediate	**required**	**required**
XieReqCreatePhotoflo	**required**	**required**
XieReqDestroyPhotoflo	**required**	**required**
XieReqExecutePhotoflo	**required**	**required**
XieReqModifyPhotoflo	**required**	**required**
XieReqRedefinePhotoflo	**required**	**required**
XieReqPutClientData	**required**	**required**
XieReqGetClientData	**required**	**required**
XieReqQueryPhotoflo	**required**	**required**
XieReqAwait	**required**	**required**
XieReqAbort	**required**	**required**

Table B-4 Import elements itemized by ServiceClass

Import Element	*Full*	*DIS*
XieFloImportClientLUT	**required**	**required**
XieFloImportClientPhoto	**required**	**required**
XieFloImportClientROI	**required**	*excluded*
XieFloImportDrawable	**required**	**required**
XieFloImportDrawablePlane	**required**	**required**
XieFloImportLUT	**required**	**required**
XieFloImportPhotomap	**required**	**required**
XieFloImportROI	**required**	*excluded*

Table B-5 Process elements itemized by ServiceClass

Process Element	*Full*	*DIS*
XieFloArithmetic	**required**	*excluded*
XieFloBandCombine	**required**	*excluded*
XieFloBandExtract	**required**	*excluded*
XieFloBandSelect	**required**	*excluded*
XieFloBlend	**required**	*excluded*
XieFloCompare	**required**	*excluded*
XieFloConstrain	**required**	*excluded*
XieFloConvertFromIndex	**required**	*excluded*
XieFloConvertFromRGB	**required**	*excluded*
XieFloConvertToIndex	**required**	*excluded*
XieFloConvertToRGB	**required**	*excluded*
XieFloConvolve	**required**	*excluded*
XieFloDither	**required**	*excluded*
XieFloGeometry	**required**	**required**
XieFloLogical	**required**	*excluded*
XieFloMatchHistogram	**required**	*excluded*
XieFloMath	**required**	*excluded*
XieFloPasteUp	**required**	*excluded*
XieFloPoint	**required**	**required**
XieFloUnconstrain	**required**	*excluded*

Table B-6 Export elements itemized by ServiceClass

Export Element	*Full*	*DIS*
XieFloExportClientHistogram	**required**	*excluded*
XieFloExportClientLUT	**required**	**required**
XieFloExportClientPhoto	**required**	**required**
XieFloExportClientROI	**required**	*excluded*
XieFloExportDrawable	**required**	**required**
XieFloExportDrawablePlane	**required**	**required**
XieFloExportLUT	**required**	**required**
XieFloExportPhotomap	**required**	**required**
XieFloExportROI	**required**	*excluded*

Table B-7 Events itemized by ServiceClass

Event	*Full*	*DIS*
XieEvnColorAlloc	**required**	*excluded*
XieEvnDecodeNotify	**required**	**required**
XieEvnExportAvailable	**required**	**required**
XieEvnImportObscured	**required**	**required**
XieEvnPhotofloDone	**required**	**required**

Table B-8 Errors itemized by ServiceClass

Error	*Full*	*DIS*
XieErrColorList	**required**	*excluded*
XieErrLUT	**required**	**required**
XieErrPhotoflo	**required**	**required**
XieErrPhotomap	**required**	**required**
XieErrPhotospace	**required**	**required**
XieErrROI	**required**	*excluded*
XieErrFloAccess	**required**	**required**
XieErrFloAlloc	**required**	**required**
XieErrFloColormap	**required**	*excluded*
XieErrFloColorList	**required**	*excluded*
XieErrFloDomain	**required**	**required**
XieErrFloDrawable	**required**	**required**
XieErrFloElement	**required**	**required**
XieErrFloGC	**required**	**required**
XieErrFloID	**required**	**required**
XieErrFloLength	**required**	**required**
XieErrFloLUT	**required**	**required**
XieErrFloMatch	**required**	**required**
XieErrFloOperator	**required**	*excluded*
XieErrFloPhotomap	**required**	**required**
XieErrFloROI	**required**	*excluded*
XieErrFloSource	**required**	**required**
XieErrFloTechnique	**required**	**required**
XieErrFloValue	**required**	**required**
XieErrFloImplementation	**required**	**required**

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