



# The graPHIGS Programming Interface: Quick Reference





# The graPHIGS Programming Interface: Quick Reference

**Note**

Before using this information and the product it supports, read the information in "Notices," on page 53.

**Fifth Edition (April 1994)**

This edition applies to the GDDM/graPHIGS Programming Interface, Version 2, Release 2.4, the AIXwindows Environment/6000 (1.2.5) AIXwindows/3D feature, and to all subsequent releases of this product until otherwise indicated in new editions.

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## About This Book

This book provides a quick reference for the graPHIGS API. It is intended as a supplement to *The graPHIGS Programming Interface: Subroutine Reference*, in which the subroutines are described in detail.

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## Who Should Use This Book

This book is intended for application programmers.

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## Highlighting

The following highlighting conventions are used in this book:

<b>Bold</b>	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
<i>Italics</i>	Identifies parameters whose actual names or values are to be supplied by the user.
Monospace	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

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## ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

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## Related Publications

The following books contain information on graPHIGS API products:

- *The graPHIGS Programming Interface: Customization and Problem Diagnosis*
- *The graPHIGS Programming Interface: Getting Started*
- *The graPHIGS Programming Interface: ISO PHIGS Quick Reference*
- *The graPHIGS Programming Interface: ISO PHIGS Subroutine Reference*
- *The graPHIGS Programming Interface: Messages and Codes*
- *The graPHIGS Programming Interface: Subroutine Reference*
- *The graPHIGS Programming Interface: Technical Reference*
- *The graPHIGS Programming Interface: Understanding Concepts*





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# Chapter 1. Abbreviations

The following abbreviations are used frequently throughout this book:

<b>ADIB</b>	Application Defaults Interface Block
<b>ARCL</b>	Archive Closed
<b>AROP</b>	Archive Open
<b>ASAP</b>	As Soon As Possible
<b>ASF</b>	Attribute Source Flag
<b>ASTI</b>	At Some Time
<b>BNIG</b>	Before Next Interaction Globally
<b>BNIL</b>	Before Next Interaction Locally
<b>CMY</b>	Cyan-Magenta-Yellow color model
<b>CSID</b>	Character Set Identifier
<b>EDF</b>	External Defaults File
<b>HSV</b>	Hue-Saturation-Value color model
<b>NDT</b>	Nucleus Descriptor Table
<b>NROP</b>	Non-Retained Structure Open
<b>NSL</b>	Nucleus State List
<b>PDT</b>	graPHIGS API Description Table
<b>PHCL</b>	graPHIGS Closed
<b>PHOP</b>	graPHIGS Open
<b>PSL</b>	graPHIGS API State List
<b>RGB</b>	Red-Green-Blue color model
<b>SSCL</b>	Structure Store Closed
<b>SSL</b>	Structure Store State List
<b>SSOP</b>	Structure Store Open
<b>STCL</b>	Structure Closed
<b>STOP</b>	Structure Open
<b>UQUM</b>	Quick Update Method
<b>USL</b>	Utility State List
<b>WAIT</b>	When Application Requests It
<b>WDO</b>	Workstation Dependent Output
<b>WDT</b>	Workstation Description Table
<b>WSCL</b>	Workstation Closed
<b>WSID</b>	Workstation Identifier
<b>WSL</b>	Workstation State List
<b>WSOP</b>	Workstation Open
<b>WSSL</b>	Workstation Selected
<b>WSTYPE</b>	Workstation Type

The following abbreviations for coordinate spaces are used:

<b>DC</b>	Device Coordinates
<b>MC</b>	Modeling Coordinates
<b>NPC</b>	Normalized Projection Coordinates
<b>VC</b>	Viewing Coordinates
<b>WC</b>	World Coordinates
<b>WU</b>	Workstation Units



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## Chapter 2. graPHIGS API Subroutine Functions

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### Control Subroutines

Name	Parameter	Long Name
GPATR	( <i>type, id, ncid, rid, pass</i> )	Attach Resource
GPCLAR	( <i>arid</i> )	Close Archive File
GPCLPH		Close graPHIGS
GPCLWS	( <i>wsid</i> )	Close Workstation
GPCNC	( <i>ncid, conn, len, spec</i> )	Connect Nucleus
GPCRFD	( <i>fdid, ncid, fdtype, fdesc</i> )	Create Font Directory
GPCRIB	( <i>ibid, ncid, depth, h, v, ibtype, ibdesc</i> )	Create Image Board
GPCRSS	( <i>ssid, ncid, sstype, ssdesc</i> )	Create Structure Store
GPCRWS	( <i>wsid, ncid, length, connid, wstype, option</i> )	Create Workstation
GPDF	( <i>wsid, defer, modif</i> )	Set Deferral State
GPDNC	( <i>ncid</i> )	Disconnect Nucleus
GPDTR	( <i>type, id</i> )	Detach Resource
GPMSG	( <i>wsid, length, text</i> )	Message
GPMSPW	( <i>ncid, pass</i> )	Set Message Password
GPOPAR	( <i>arid, ncid, flag, length, ardesc</i> )	Open Archive File
GPOPPH	( <i>errfil, adib</i> )	Open graPHIGS
GPOPWS	( <i>wsid, connid, wstype</i> )	Open Workstation
GPPW	( <i>type, id, pass</i> )	Set Password
GPRAST	( <i>wsid, flag</i> )	Redraw All Structures
GPSBMS	( <i>ncid, major, minor, len, msg</i> )	Send Broadcast Message
GPSDAL	( <i>wsid</i> )	Sound Alarm
GPSHDF	( <i>deferral, update</i> )	Set Shell Deferral State
GPSPMS	( <i>ncid, shid, pass, major, minor, len, msg</i> )	Send Private Message
GPSYNC	( <i>ncid, synch</i> )	Synchronize
GPTRCE	( <i>control</i> )	Internal Trace Control
GPUPWA	( <i>wsid</i> )	Update Workstation Asynchronous
GPUPWS	( <i>wsid, regen</i> )	Update Workstation

---

### Output Primitives

Name	Parameter	Long Name
GPAN2	( <i>point, length, text</i> )	Annotation Text 2
GPAN3	( <i>point, length, text</i> )	Annotation Text 3
GPANR2	( <i>refpt, textvec, length, text</i> )	Annotation Text Relative 2
GPANR3	( <i>refpt, textvec, length, text</i> )	Annotation Text Relative 3
GPCFA2	( <i>ncontour, ncurve, curveinfo, knot, tess, vwidth, vdata</i> )	Composite Fill Area 2
GPCHL2	( <i>startp, endp, nomhgt, char</i> )	Character Line 2
GPCR2	( <i>center, radius</i> )	Circle 2
GPCRA2	( <i>center, radius, startang, endang</i> )	Circular Arc 2
GPDPL2	( <i>npoint, width, pointlist, mdarray</i> )	Disjoint Polyline 2
GPDPL3	( <i>npoint, width, pointlist, mdarray</i> )	Disjoint Polyline 3
GPEL2	( <i>center, refv1, refv2</i> )	Ellipse 2
GPEL3	( <i>center, refv1, refv2</i> )	Ellipse 3
GPELA2	( <i>center, refv1, refv2, startv, endv</i> )	Elliptical Arc 2
GPELA3	( <i>center, refv1, refv1, startv, endv</i> )	Elliptical Arc 3
GPLG2	( <i>point, refv1, refv2, imin, imax, jmin, jmax</i> )	Line Grid 2
GPLG3	( <i>point, refv1, refv2, imin, imax, jmin, jmax</i> )	Line Grid 3

Name	Parameter	Long Name
GPMG2	( <i>point, refv1, refv2, imin, imax, jmin, jmax</i> )	Marker Grid 2
GPMG3	( <i>point, refv1, refv2, imin, imax, jmin, jmax</i> )	Marker Grid 3
GNBC2	( <i>order, npoint, knot, tflags, tdata, cflags, cwidth, ctlpts, tmin, tmax</i> )	Non-Uniform B-Spline Curve 2
GNBC3	( <i>order, npoint, knot, tflags, tdata, cflags, cwidth, ctlpts, tmin, tmax</i> )	Non-Uniform B-Spline Curve 3
GNBS	( <i>uorder, vorder, unum, vnum, uknots, vknots, tflag, utdata, vtdata, cflags, cwidth, ctlpts, umin, umax, vmin, vmax</i> )	Non-Uniform B-Spline Surface
GPPGD2	( <i>pflags, pdata, saflags, sawidth, sadata, vxflags, vxwidth, vxdata</i> )	Polygon 2 With Data
GPPGD3	( <i>pflags, pdata, saflags, sawidth, sadata, vxflags, vxwidth, vxdata</i> )	Polygon 3 With Data
GPPG2	( <i>areas, npoint, width, pointlist</i> )	Polygon 2
GPPG3	( <i>areas, npoint, width, pointlist</i> )	Polygon 3
GPPHE	( <i>nedge, edgelist</i> )	Polyhedron Edge
GPPL2	( <i>npoint, width, pointlist</i> )	Polyline 2
GPPL3	( <i>npoint, width, pointlist</i> )	Polyline 3
GPPLD3	( <i>pflags, pdata, plflags, plwidth, pldata, vxflags, vxwidth, vxdata</i> )	Polyline Set 3 With Data
GPPM2	( <i>npoint, width, pointlist</i> )	Polymarker 2
GPPM3	( <i>npoint, width, pointlist</i> )	Polymarker 3
GPPXL2	( <i>point, pack, numrow, numcol, startrow, startcol, nrow, ncol, array</i> )	Pixel 2
GPPXL3	( <i>point, pack, numrow, numcol, startrow, startcol, nrow, ncol, array</i> )	Pixel 3
GPQM3	( <i>mflags, mdata, qflags, qwidth, qdata, vxflags, vxwidth, vxdata</i> )	Quadrilateral Mesh 3
GPSPH	( <i>nsphere, pflags, pdata, width, spherelist</i> )	Polysphere
GPTNBS	( <i>uorder, vorder, unum, vnum, uknots, vknots, tflag, utess, vtess, cflags, cwidth, ctlpts, ncontour, ncurve, curveinfo, tknot, ttess, cdwidth, cdata</i> )	Trimmed Non-Uniform B-Spline Surface
GPTS3	( <i>pflags, pdata, tflags, twidth, tdata, vxflags, vxwidth, vxdata</i> )	Triangle Strip 3
GPTX2	( <i>point, length, text</i> )	Geometric Text 2
GPTX3	( <i>point, length, text, refv1, refv2</i> )	Geometric Text 3

---

## Attribute Structure Elements

Name	Parameter	Long Name
GPAAL	( <i>horiz, vert</i> )	Set Annotation Alignment
GPADCN	( <i>number, names</i> )	Add Class Name to Set
GPAH	( <i>height</i> )	Set Annotation Height
GPAHSC	( <i>factor</i> )	Set Annotation Height Scale Factor
GPAID	( <i>antid</i> )	Set Antialiasing Identifier
GPAPT	( <i>path</i> )	Set Annotation Path
GPAS	( <i>style</i> )	Set Annotation Style
GPASF	( <i>number, id, flag</i> )	Attribute Source Flag Setting
GPAUP	( <i>vector</i> )	Set Annotation Up Vector
GPBLF	( <i>srcf, destf</i> )	Set Back Blending Function
GPBDFM	( <i>minfm, magfm, boundu, boundv</i> )	Set Back Data Filtering Method
GPBDMI	( <i>index</i> )	Set Back Data Mapping Index
GPBDM2	( <i>matrix</i> )	Set Back Data Matrix 2

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPBICD	(color)	Set Back Interior Color Direct
GPBICI	(index)	Set Back Interior Color Index
GPBISM	(method)	Set Back Interior Shading Method
GPBLF	(srcf, destf)	Set Blending Function
GPBRMO	(model)	Set Back Reflectance Model
GPBSCD	(color)	Set Back Specular Color Direct
GPBSCI	(index)	Set Back Specular Color Index
GPBSPR	(amb, diff, spec, exp, trans)	Set Back Surface Properties
GPBTCO	(coeff)	Set Back Transparency Coefficient
GPCAC	(criteria, value)	Set Curve Approximation Criteria
GPCHH	(height)	Set Character Height
GPCHLS	(scale)	Set Character Line Scale Factor
GPCHPM	(posmode)	Set Character Positioning Mode
GPCHSP	(space)	Set Character Spacing
GPCHUB	(up, base)	Set Character Up and Base Vectors
GPCHUP	(up)	Set Character Up Vector
GPCHXP	(expans)	Set Character Expansion Factor
GPCPI	(index)	Set Color Processing Index
GPDCI	(index)	Set Depth Cue Index
GPDFM	(minfm, magfm, boundu, boundv)	Set Data Filtering Method
GPDMI	(index)	Set Data Mapping Index
GPDMR	(wsid, index, method, mdata, clengths, ctype, cdata)	Set Data Mapping Representation
GPDM2	(matrix)	Set Data Matrix 2
GPECD	(color)	Set Edge Color Direct
GPECI	(index)	Set Edge Color Index
GPEF	(edgefg)	Set Edge Flag
GPEI	(index)	Set Edge Index
GPELT	(edgelt)	Set Edge Linetype
GPESC	(edgesf)	Set Edge Scale Factor
GPFBC	(op, mask, value)	Set Frame Buffer Comparison
GPFBM	(mask)	Set Frame Buffer Protect Mask
GPFDMO	(mode)	Set Face Distinguish Mode
GPFLM	(flmeth)	Set Face Lighting Method
GPHID	(hlhsr)	Set HLHSR Identifier
GPHLCD	(color)	Set Highlighting Color Direct
GPHLCI	(index)	Set Highlighting Color Index
GPICD	(color)	Set Interior Color Direct
GPICI	(index)	Set Interior Color Index
GPII	(index)	Set Interior Index
GPIS	(style)	Set Interior Style
GPISI	(index)	Set Interior Style Index
GPISM	(method)	Set Interior Shading Method
GPLLCD	(color)	Set Line-on-Line Color Direct
GPLLCI	(index)	Set Line-on-Line Color Index
GPLMO	(mode)	Set Lighting Calculation Mode
GPLSS	(nact, act, ndea, dea)	Set Light Source State
GPLT	(ltype)	Set Linetype
GPLWSC	(lwidth)	Set Linewidth Scale Factor
GPMSSC	(msize)	Set Marker Size Scale Factor
GPMT	(mtype)	Set Marker Type
GPPGC	(mode)	Set Polygon Culling
GPPHEC	(mode)	Set Polyhedron Edge Culling
GPPKID	(pickid)	Set Pick Identifier

Name	Parameter	Long Name
GPPLCD	(color)	Set Polyline Color Direct
GPPLCI	(index)	Set Polyline Color Index
GPPLET	(endtype)	Set Polyline End Type
GPPLI	(index)	Set Polyline Index
GPPLSM	(method)	Set Polyline Shading Method
GPPMCD	(color)	Set Polymarker Color Direct
GPPMCI	(index)	Set Polymarker Color Index
GPPMI	(index)	Set Polymarker Index
GPPSC	(type, data)	Parametric Surface Characteristics
GPRCN	(number, names)	Remove Class Name from Set
GPRMO	(model)	Set Reflectance Model
GPSAC	(criteria, ctrlval1, ctrlval2)	Set Surface Approximation Criteria
GPSCD	(color)	Set Specular Color Direct
GPSCI	(index)	Set Specular Color Index
GPSPR	(amb, diff, spec, exp, trans)	Set Surface Properties
GPTCAC	(criteria, ctrlval1, ctrlval2, ctrlval3)	Set Trimming Curve Approximation Criteria
GPTCO	(coeff)	Set Transparency Coefficient
GPTXAL	(horiz, vert)	Set Text Alignment
GPTXCD	(color)	Set Text Color Direct
GPTXCI	(index)	Set Text Color Index
GPTXFO	(font)	Set Text Font
GPTXI	(index)	Set Text Index
GPTXPR	(prec)	Set Text Precision
GPTXPT	(path)	Set Text Path
GPVWI	(index)	Set View Index
GPZBM	(mask)	Set Z-buffer Protect Mask

---

## Miscellaneous Structure Elements

Name	Parameter	Long Name
GPCEXS	(mask, crit, mode, strid)	Conditional Execute Structure
GPCOND	(on, off)	Set Condition
GPCRET	(mask, crit)	Conditional Return
GPEXST	(strid)	Execute Structure
GPINAD	(length, data)	Insert Application Data
GPINLB	(label)	Insert Label
GPNULL		Null Data
GPTX2	(point1, point2, index)	Test Extent 2
GPTX3	(point1, point2, index)	Test Extent 3
GPWDO	(length, data)	Workstation-Dependent Output

---

## Structure Operations

Name	Parameter	Long Name
GPASSW	(wsid, ssid)	Associate Structure Store with Workstation
GPCCM	(mode)	Set Convexity Checking Mode
GPCEDT	(flag)	Conditional Editing
GPCLST		Close Structure
GPCPER	(strid, elem1, elem2)	Copy Element Range
GPCPST	(strid)	Copy Structure
GPCSI	(ostrid, rstrid)	Change Structure Identifier
GPCSIR	(ostrid, rstrid)	Change Structure Identifier and References

Name	Parameter	Long Name
GPCSRS	(ostrid, rstrid)	Change Structure References
GPDAST		Delete All Structures
GPDCM	(model)	Set Direct Color Model
GPDELB	(label1, label2)	Delete Element Between Labels
GPDLG	(wsid, ctid)	Delete Color Table
GPDLN		Delete Element
GPDLN	(label1, label2, option)	Delete Element Group
GPDLR	(elem1, elem2)	Delete Element Range
GPDLN	(strid)	Delete Structure Network Conditionally
GPDLN	(strid)	Delete Structure Network
GPDLN	(strid)	Delete Structure
GPEDMO	(mode)	Set Edit Mode
GPEP	(elem)	Set Element Pointer
GPEPCD	(code)	Locate Element Pointer at Element Code
GPEPLG	(label, flag)	Generalized Set Element Pointer at Label
GPEPPG	(pickid, flag)	Generalized Set Element Pointer at Pick Identifier
GPEST	(strid)	Empty Structure
GPMVER	(elem1, elem2)	Move Element Range
GNLER	(re1, re2)	Nullify Element Range
GPOEP	(offset)	Offset Element Pointer
GPOPST	(strid)	Open Structure
GPSSS	(ssid)	Select Structure Store
GPSSTH	(ssid, threshold)	Set Structure Store Threshold
GPTAST	(ssid, flag)	Transfer All Structures
GPTST	(ssid, flag, number, lstrid)	Transfer Structures
GPTXCS	(csid)	Set Text Character Set

---

## Archive Subroutines

Name	Parameter	Long Name
GPASRS	(arid)	Archive All Structures
GPASRN	(arid, number, lstrid)	Archive Structure Networks
GPASRT	(arid, number, lstrid)	Archive Structures
GPCNRS	(aflag, rflag)	Set Conflict Resolution
GPDASA	(arid)	Delete All Structures from Archive
GPDSAR	(arid, number, lstrid)	Delete Structures from Archive
GPDSNA	(arid, number, lstrid)	Delete Structures Networks from Archive
GPRVAS	(arid)	Retrieve All Structures
GPRVSN	(arid, number, lstrid)	Retrieve Structure Networks
GPRVST	(arid, number, lstrid)	Retrieve Structures

---

## Workstation Table Operations

Name	Parameter	Long Name
GPCML	(wsid, model)	Set Color Model
GPCPR	(wsid, index, model, quant, data)	Set Color Processing Representation
GPCRC	(wsid, ctid, model, length)	Create Color Table
GPCSR	(wsid, index, size)	Set Cull Size Representation
GPDCR	(wsid, index, id, value)	Set Depth Cue Representation
GPDLG	(wsid, ctid)	Delete Color Table
GPGTXC	(wsid, height, method)	Set Geometric Text Culling



Name	Parameter	Long Name
GPHLF	( <i>wsid, inclen, incl, exclen, excl</i> )	Set Highlighting Filter
GPHR	( <i>wsid, hatch, format, length, data</i> )	Set Hatch Representation
GPIVF	( <i>wsid, inclen, incl, exclen, excl</i> )	Set Invisibility Filter
GPLNR	( <i>wsid, ltype, style, data</i> )	Set Linetype Rendering
GPLSR	( <i>wsid, index, type, color, data</i> )	Set Light Source Representation
GPLTR	( <i>wsid, ltype, number, list</i> )	Set Linetype Representation
GPMTR	( <i>wsid, mtype, format, length, data</i> )	Set Marker Type Representation
GPPAR	( <i>wsid, index, numrow, numcol, strow, strcol, nrow, ncol, array</i> )	Set Pattern Representation
GPVIP	( <i>wsid, view, refview, flag</i> )	Set View Input Priority
GPVOP	( <i>wsid, view, refview, flag</i> )	Set View Output Priority
GPVP	( <i>wsid, view, refview, flag</i> )	Set View Priority
GPXCR	( <i>wsid, ctid, start, number, color</i> )	Set Extended Color Representation
GPXER	( <i>wsid, index, id, value</i> )	Set Extended Edge Representation
GPXIR	( <i>wsid, index, id, value</i> )	Set Extended Interior Representation
GPXPLR	( <i>wsid, index, id, value</i> )	Set Extended Polyline Representation
GPXPMR	( <i>wsid, index, id, value</i> )	Set Extended Polymarker Representation
GPXTXR	( <i>wsid, index, id, value</i> )	Set Extended Text Representation
GPXVCH	( <i>wsid, view, number, charids, values</i> )	Set Extended View Characteristics
GPXVR	( <i>wsid, view, id, value</i> )	Set Extended View Representation

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## Display Subroutines

Name	Parameter	Long Name
GPARV	( <i>wsid, view, strid, prior</i> )	Associate Root with View
GPARW	( <i>wsid, strid</i> )	Associate Root with Workstation
GPCIM2	( <i>wsid, imap, view, index, origin, size, P, Q, R, method, prior</i> )	Create Image Mapping 2
GPCIM3	( <i>wsid, imap, view, index, origin, size, P, Q, R, method, prior</i> )	Create Image Mapping 3
GPDARW	( <i>wsid</i> )	Disassociate All Roots from Workstation
GPDIM	( <i>wsid, imap</i> )	Delete Image Mapping
GPDRAV	( <i>wsid, strid</i> )	Disassociate Root from All Views
GPDRV	( <i>wsid, view, strid</i> )	Disassociate Root from View
GPDRAW	( <i>wsid, strid</i> )	Disassociate Root from Workstation
GPEAV	( <i>wsid</i> )	Empty All Views
GPEV	( <i>wsid, view</i> )	Empty View

---

## Transformation Subroutines

Name	Parameter	Long Name
GPBDMF	( <i>flength, fdata</i> )	Set Back Data Morphing Factors
GPDCMM	( <i>wsid, method, length, data</i> )	Set Device Coordinate Mapping Method
GPDMF	( <i>flength, fdata</i> )	Set Data Morphing Factors
GPGLX2	( <i>matrix</i> )	Set Global Transformation 2
GPGLX3	( <i>matrix</i> )	Set Global Transformation 3
GPMCI	( <i>indic</i> )	Set Modeling Clipping Indicator
GPMCV2	( <i>oper, number, lhspace</i> )	Set Modeling Clipping Volume 2
GPMCV3	( <i>oper, number, lhspace</i> )	Set Modeling Clipping Volume 3
GPMLX2	( <i>matrix, type</i> )	Set Modeling Transformation 2
GPMLX3	( <i>matrix, type</i> )	Set Modeling Transformation 3
GPRMCV		Restore Modeling Clipping Volume



Name	Parameter	Long Name
GPVMF	( <i>flength, fdata</i> )	Set Vertex Morphing Factors
GPWSX2	( <i>wsid, window, viewpt</i> )	Set Workstation Transformation 2
GPWSX3	( <i>wsid, window, viewpt</i> )	Set Workstation Transformation 3

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## Input Subroutines

Name	Parameter	Long Name
GPAWEV	( <i>time, major, class, minor</i> )	Await Event
GPBKAC	( <i>wsid, trigger</i> )	Set Break Action
GPCHMO	( <i>wsid, device, mode, echosw</i> )	Set Choice Mode
GPCUR	( <i>wsid, index, format, shape</i> )	Set Cursor Representation
GPCUS	( <i>wsid, ctype</i> )	Set Cursor Shape
GPEPD	( <i>wsid, category, device, value</i> )	Emulate Physical Device
GPEVHN	( <i>event-handler, anchor</i> )	Define Event Handling Subroutine
GPFLEV	( <i>wsid, class, device</i> )	Flush Device Event
GPFWEV	( <i>wsid</i> )	Flush Workstation Event
GPGTCH	( <i>choice</i> )	Get Choice
GPGTLC	( <i>view, pos</i> )	Get Locator
GPGTMS	( <i>ilen, olen, string</i> )	Get Message
GPGTPK	( <i>length, depth, pickpath</i> )	Get Pick
GPGTSK	( <i>length, view, npoint, pointlist</i> )	Get Stroke
GPGTST	( <i>ilen, olen, string</i> )	Get String
GPGTVL	( <i>value</i> )	Get Valuator
GPGTXP	( <i>maxdepth, view, point, modelling, depth, pickpath</i> )	Get Extended Pick
GPGWIN	( <i>ilen, olen, data</i> )	Get Window
GPICS	( <i>wsid, class, device, csid</i> )	Set Input Character Set
GPIDMO	( <i>wsid, class, device, state, deact, echosw, trigger, break, reset</i> )	Set Input Device Mode
GPIEC	( <i>wsid, color</i> )	Set Input Echo Color
GPINCH	( <i>wsid, device, choice, echo, area, datalen, data</i> )	Initialize Choice
GPINLC	( <i>wsid, device, view, pos, echo, area, datalen, data</i> )	Initialize Locator
GPINPK	( <i>wsid, device, depth, pickpath, echo, area, datalen, data, order</i> )	Initialize Pick
GPINSK	( <i>wsid, device, view, npoint, width, pointlist, echo, area, buflen, editpos, datalen, data</i> )	Initialize Stroke
GPINST	( <i>wsid, device, length, string, echo, area, buflen, cursor, datalen, data</i> )	Initialize String
GPINVL	( <i>wsid, device, ivalue, echo, area, lovalue, hivalue, datalen, data</i> )	Initialize Valuator
GPIPKC	( <i>wsid, device, state</i> )	Set Initial Pick Correlation State
GPIT	( <i>wsid, class, devnum, listid, tnum, trigelist</i> )	Set Input Device Trigger
GPLCMO	( <i>wsid, device, mode, echosw</i> )	Set Locator Mode
GPPDMO	( <i>wsid, category, device, mode</i> )	Set Physical Device Mode
GPPKAP	( <i>wsid, device, size</i> )	Set Pick Aperture
GPPKFF	( <i>wsid, device, inclen, incl, exclen, excl</i> )	Set Pick Filter
GPPKMO	( <i>wsid, device, mode, echosw</i> )	Set Pick Mode
GPPKSC	( <i>wsid, device, criteria</i> )	Set Pick Selection Criteria
GPRQCH	( <i>wsid, device, status, choice</i> )	Request Choice
GPRQLC	( <i>wsid, device, status, view, pos</i> )	Request Locator
GPRQPK	( <i>wsid, device, length, status, depth, pickpath</i> )	Request Pick

Name	Parameter	Long Name
GPRQSK	( <i>wsid, device, length, status, view, npoint, pointarray</i> )	Request Stroke
GPRQST	( <i>wsid, device, length, status, number, string</i> )	Request String
GPRQVL	( <i>wsid, device, status, value</i> )	Request Valuator
GPRQXP	( <i>wsid, device, maxdepth, status, view, point, modelling, depth, pickpath</i> )	Request Extended Pick
GPSKMO	( <i>wsid, device, mode, echosw</i> )	Set Stroke Mode
GPSMCH	( <i>wsid, device, choice</i> )	Sample Choice
GPSMLC	( <i>wsid, device, view, pos</i> )	Sample Locator
GPSMPK	( <i>wsid, device, length, depth, pickpath</i> )	Sample Pick
GPSMSK	( <i>wsid, device, length, view, npoint, pointarray</i> )	Sample Stroke
GPSMST	( <i>wsid, device, length, number, string</i> )	Sample String
GPSMVL	( <i>wsid, device, value</i> )	Sample Valuator
GPSMXP	( <i>wsid, device, maxdepth, view, point, modelling, depth, pickpath</i> )	Sample Extended Pick
GPSTMO	( <i>wsid, device, mode, echosw</i> )	Set String Mode
GPVLMO	( <i>wsid, device, mode, echosw</i> )	Set Valuator Mode

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## Font Subroutines

Name	Parameter	Long Name
GPACFO	( <i>wsid, csid, font</i> )	Activate Font
GPAFDW	( <i>wsid, fdid</i> )	Associate Font Directory with Workstation
GPDAFO	( <i>wsid, csid, font</i> )	Deactivate Font
GPLDFO	( <i>fdid, csid, font</i> )	Delete Font
GPLDFO	( <i>fdid, csid, font, option</i> )	Load Font

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## Image Subroutines

Name	Parameter	Long Name
GPCAI	( <i>wsid, index</i> )	Cancel Image
GPDFI	( <i>wsid, index, conn, ctid, nibid, libid</i> )	Define Image
GPFRCT	( <i>ibid, origin, size, value</i> )	Fill Rectangle
GPRRCT	( <i>sibid, sorigin, size, format, parm, torigin, data</i> )	Read Rectangle
GPTRCT	( <i>tibid, torigin, size, sibid, sorigin</i> )	Transfer Rectangle
GPTHPO	( <i>tibid, torigin, size, sibid1, sorigin1, sibid2, sorigin2, op, opparm</i> )	Three Operand Pixel Operation
GPTWPO	( <i>tibid, torigin, size, sibid, sorigin, op, opparm</i> )	Two Operand Pixel Operation
GPWRCT	( <i>tibid, torigin, size, format, parm, sorigin, data</i> )	Write Rectangle

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## Utility Subroutines

Name	Parameter	Long Name
GPCCV	( <i>wsid, ctype, ptype, number, ilist, errind, olist</i> )	Convert Coordinate Values
GPCMT2	( <i>matra, matrb, matrix</i> )	Compose Matrix 2
GPCMT3	( <i>matra, matrb, matrix</i> )	Compose Matrix 3
GPCVD	( <i>datatype, env, origin, datalen, idata, odata</i> )	Convert Data
GPCVMT	( <i>matrix</i> )	Compute View Matrix
GPDFCO	( <i>origin, zplane, up, matrix</i> )	Define Coordinate System
GPEVM2	( <i>window, viewpt, errind, matrix</i> )	Evaluate View Mapping Matrix 2

Name	Parameter	Long Name
GPEVM3	( <i>window, viewpt, type, point, dist, near, far, errind, matrix</i> )	Evaluate View Mapping Matrix 3
GPPREC	( <i>numi, iary, numr, rary, nums, swidth, lens, sary, mlodr, errind, lodr, datarec</i> )	Pack Data Record
GPRNBS	( <i>uorder, vorder, unum, vnum, uknots, vknots, tflag, utdata, vtdata, cflags, cwidth, ctlpts, umin, umax, vmin, vmax, option, nelen</i> )	Reevaluate Non-Uniform B-Spline Surface
GPROTX	( <i>angle, matrix</i> )	Rotate X
GPROTY	( <i>angle, matrix</i> )	Rotate Y
GPROTZ	( <i>angle, matrix</i> )	Rotate Z
GPROT2	( <i>angle, matrix</i> )	Rotate 2
GPRTNS	( <i>uorder, vorder, unum, vnum, uknots, vknots, tflag, utess, vtess, cflags, cwidth, ctlpts, ncontour, ncurve, curveinfo, tknot, ttess, cdwidth, option, nelen</i> )	Reevaluate Trimmed Non-Uniform B-Spline Surface
GPSC2	( <i>scale, matrix</i> )	Scale 2
GPSC3	( <i>scale, matrix</i> )	Scale 3
GPTRL2	( <i>vector, matrix</i> )	Translate 2
GPTRL3	( <i>vector, matrix</i> )	Translate 3
GPVPLN	( <i>normal</i> )	Set View Plane Normal
GPVR	( <i>point</i> )	Set View Reference Point
GPVUP	( <i>vector</i> )	Set View Up
GPXF2	( <i>point, matrix, result</i> )	Transform Point 2
GPXF3	( <i>point, matrix, result</i> )	Transform Point 3

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## Error Handling Subroutines

Name	Parameter	Long Name
GPEHND	( <i>error-handler</i> )	Define Error Handling Subroutine GPEHND.
GPELOG	( <i>file</i> )	Error Logging GPELOG.
GPEMO	( <i>mode</i> )	Set Error Handling Mode GPEMO.
GPEXIT	( <i>error-routine, severity</i> )	Specify an Error Exit and Error Threshold GPEXIT.

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## Miscellaneous Subroutines

Name	Parameter	Long Name
GPES	( <i>funcid, lidr, idr, mlodr, lodr, odr</i> )	Escape
GPDRFB	( <i>wsid, frame, sorigin, size, format, parm, torigin, data</i> )	Read Frame Buffer

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## WSL Inquiries

Name	Parameter	Long Name
GPQAR	( <i>wsid, start, number, errind, totnum, strid</i> )	Inquire Set of Associated Roots
GPQBKS	( <i>wsid, errind, trigger</i> )	Inquire Break Action State
GPQCCH	( <i>wsid, ctid, errind, model, length</i> )	Inquire Color Table Characteristics
GPQCH	( <i>wsid, device, type, length, errind, mode, echosw, choice, echo, area, datalen, data</i> )	Inquire Choice Device State
GPQCID	( <i>wsid, start, number, errind, totnum, ctid</i> )	Inquire List of Color Table Identifiers
GPQCML	( <i>wsid, errind, model</i> )	Inquire Color Model

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPQCPR	( <i>wsid, index, errind, model, quant, data</i> )	Inquire Color Processing Representation
GPQCSR	( <i>wsid, index, type, errind, size</i> )	Inquire Cull Size Representation
GPQCVE	( <i>wsid, start, number, errind, nview, view</i> )	Inquire Current View Table Entries Input
GPQCVO	( <i>wsid, start, number, errind, nview, view</i> )	Inquire Current View Table Entries Output
GPQCVR	( <i>wsid, view, number, ids, errind, data</i> )	Inquire Current View Representation
GPQDCR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Depth Cue Representation
GPQDMR	( <i>wsid, index, llengths, ldata, errind, method, mdata, clengths, ctype, cdata</i> )	Inquire Data Mapping Representation
GPQDV	( <i>wsid, errind, defer, modif, dissurf, dstat</i> )	Inquire Deferral and Update State Values
GPQFO	( <i>wsid, start, number, errind, nfont, lcsid, lfont</i> )	Inquire Active Fonts
GPQGFC	( <i>wsid, csid, font, start, num, errind, prec, nhts, lhts, lmfac, lmxfac</i> )	Inquire Geometric Font Characteristics
GPQHLF	( <i>wsid, inlen, exlen, errind, inclen, incl, exclen, excl</i> )	Inquire Highlighting Filter
GPQHR	( <i>wsid, index, errind, format, length, data</i> )	Inquire Hatch Representation
GPQICH	( <i>wsid, index, errind, conn, ctid, totnum, libid</i> )	Inquire Image Characteristics
GPQICS	( <i>wsid, class, device, errind, csid</i> )	Inquire Input Character Set
GPQID	( <i>wsid, class, device, errind, state, deact, echosw, trigger, break, reset</i> )	Inquire Input Device State
GPQIMC	( <i>wsid, imid, errind, view, index, origin, size, P, Q, R, method, priority</i> )	Inquire Image Mapping Characteristics
GPQIMI	( <i>wsid, index, start, number, errind, totnum, limid</i> )	Inquire Image Mapping of Image
GPQIMV	( <i>wsid, view, start, number, errind, totnum, limid</i> )	Inquire Image Mapping on View
GPQIMW	( <i>wsid, start, number, errind, totnum, limid</i> )	Inquire Image Mapping on Workstation
GPQITS	( <i>wsid, class, devnum, listid, start, number, errind, ntrigs, ltrigs</i> )	Inquire Input Device Trigger State
GPQIVF	( <i>wsid, inlen, exlen, errind, inclen, incl, exclen, excl</i> )	Inquire Invisibility Filter
GPQIW	( <i>wsid, start, number, errind, totnum, lindex</i> )	Inquire List of Images on the Workstation
GPQLC	( <i>wsid, device, type, length, errind, mode, echosw, view, pos, echo, area, datalen, data</i> )	Inquire Locator Device State
GPQLSR	( <i>wsid, index, type, errind, lstype, color, data</i> )	Inquire Light Source Representation
GPQLTR	( <i>wsid, ltype, errind, number, pattern</i> )	Inquire Linetype Representation
GPQMDS	( <i>wsid, errind, units, csize, asize</i> )	Inquire Mapped Display Surface Size
GPQMTR	( <i>wsid, mtype, errind, format, length, data</i> )	Inquire Marker Type Representation
GPQPAR	( <i>wsid, index, type, maxrow, maxcol, errind, drow, dcol, array</i> )	Inquire Pattern Representation
GPQPK	( <i>wsid, device, type, inlen, exlen, pathlen, length, errind, mode, echosw, inclen, incl, exclen, excl, depth, pickpath, echo, area, datalen, data, order</i> )	Inquire Pick Device State
GPQPKA	( <i>wsid, device, errind, size</i> )	Inquire Pick Aperture
GPQRCT	( <i>wsid, ilen, errind, olen, connid, wstype</i> )	Inquire Realized Connection Type
GPQRV	( <i>wsid, view, start, number, errind, totnum, strid, priority</i> )	Inquire Set of Roots in View
GPQRVE	( <i>wsid, start, number, errind, totnum, view</i> )	Inquire Requested View Table Entries Input
GPQRVO	( <i>wsid, start, number, errind, totnum, view</i> )	Inquire Requested View Table Entries Output
GPQRVR	( <i>wsid, view, number, ids, errind, data</i> )	Inquire Requested View Representation
GPQSK	( <i>wsid, device, type, lenpts, length, errind, mode, echosw, view, npoint, pointarray, echo, area, buflen, editpos, datalen, data</i> )	Inquire Stroke Device State
GPQST	( <i>wsid, device, type, slen, length, errind, mode, echosw, strlen, string, echo, area, buflen, editpos, datalen, data</i> )	Inquire String Device State

Name	Parameter	Long Name
GPQVL	( <i>wsid, device, type, length, errind, mode, echosw, ivalue, echo, area, lovalue, hivalue, datalen, data</i> )	Inquire Valuator Device State
GPQVR	( <i>wsid, strid, start, number, errind, totnum, view</i> )	Inquire Set of Views Which Contain Root
GPQWSU	( <i>wsid, errind, total, lgblock, numblks</i> )	Inquire Workstation Storage Utilization
GPQWSX	( <i>wsid, errind, state, rwindow, cwindow, rviewpt, cviewpt</i> )	Inquire Workstation Transformation
GPQXAF	( <i>wsid, csid, font, start, num, errind, prec, nomh, nahsf, lahsf, Infac, lmnfac, lmxfac, proportional, top, bottom, nomaspect</i> )	Inquire Extended Annotation Font Characteristics
GPQXCR	( <i>wsid, ctid, start, number, type, errind, color</i> )	Inquire Extended Color Representation
GPQXER	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Edge Representation
GPQXIR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Interior Representation
GPQXLR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Polyline Representation
GPQXMR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Polymarker Representation
GPQXTR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Text Representation

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## WDT Inquiries

Name	Parameter	Long Name
GPQAAF	( <i>wstype, attrib, start, number, errind, totnum, enum</i> )	Inquire Advanced Attribute Facilities
GPQAMO	( <i>wstype, start, number, errind, totnum, mode</i> )	Inquire Available Antialiasing Modes
GPQANF	( <i>wstype, start, number, errind, totnum, styles</i> )	Inquire Annotation Facilities
GPQART	( <i>wstype, errind, totnum</i> )	Inquire Rendering Targets
GPQBK	( <i>wstype, start, number, errind, ntrigs, ltrigs</i> )	Inquire Break Capabilities
GPQCDF	( <i>wstype, start, number, errind, order, totnum, criteria</i> )	Inquire Curve Display Facilities
GPQCF	( <i>wstype, errind, model, ncolor, avcolor, npred</i> )	Inquire Color Facilities
GPQCPF	( <i>wstype, errind, number, npred</i> )	Inquire Color Processing Facilities
GPQCQM	( <i>wstype, start, number, errind, totnum, method</i> )	Inquire Available Color Quantization Methods
GPQCSF	( <i>wstype, errind, number, npred</i> )	Inquire Cull Size Facilities
GPQCUF	( <i>wstype, start1, num1, start2, num2, errind, maxent, maxsize, totnum1, lformat, totnum2, lcursor, npred</i> )	Inquire Cursor Facilities
GPQDBK	( <i>wstype, errind, trigger</i> )	Inquire Default Break Action
GPQDCF	( <i>wstype, errind, number, npred</i> )	Inquire Depth Cue Facilities
GPQDCH	( <i>wstype, device, start, number, length, errind, choice, necho, echo, area, datalen, data</i> )	Inquire Default Choice Device Data
GPQDDV	( <i>wstype, errind, defer, modif</i> )	Inquire Default Deferral State Values
GPQDIT	( <i>wstype, class, devnum, listid, start, number, errind, ndtrigs, dtriglist</i> )	Inquire Default Input Device Triggers
GPQDLC	( <i>wstype, device, start, number, length, errind, dimen, pos, necho, echo, area, datalen, data</i> )	Inquire Default Locator Device Data
GPQDPK	( <i>wstype, device, start, number, length, errind, maxpath, necho, echo, area, datalen, data</i> )	Inquire Default Pick Device Data
GPQDS	( <i>wstype, errind, units, csize, asize</i> )	Inquire Maximum Display Surface Size
GPQDSK	( <i>wstype, device, start, number, length, errind, dimen, size, necho, echo, area, buflen, editpos, datalen, data</i> )	Inquire Default Stroke Device Data
GPQDST	( <i>wstype, device, start, number, length, errind, size, necho, echo, area, buflen, editpos, datalen, data</i> )	Inquire Default String Device Data



<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPQDVL</b>	<i>(wstype, device, start, number, length, errind, ivalue, necho, echo, area, lovalue, hivalue, datalen, data)</i>	Inquire Default Valuator Device Data
<b>GPQEF</b>	<i>(wstype, start, number, errind, netype, eltype, nelwidth, elwidth, minelw, maxelw, npred)</i>	Inquire Edge Facilities
<b>GPQES</b>	<i>(wstype, start, number, errind, totnum, escid)</i>	Inquire List of Available Escape Subroutines
<b>GPQFBC</b>	<i>(wstype, errind, org, n, depth)</i>	Inquire Frame Buffer Characteristics
<b>GPQFP</b>	<i>(wstype, errind, poolsize)</i>	Inquire Font Pool Size
<b>GPQGD</b>	<i>(wstype, start, number, errind, totnum, gdpid)</i>	Inquire List of Generalized Drawing Primitives
<b>GPQGDP</b>	<i>(wstype, gdpid, errind, number, list)</i>	Inquire Generalized Drawing Primitive
<b>GPQGSE</b>	<i>(wstype, start, number, errind, totnum, gseid)</i>	Inquire List of Available GSEs
<b>GPQHD</b>	<i>(wstype, errind, depth)</i>	Inquire Maximum Hierarchy Depth
<b>GPQHF</b>	<i>(wstype, errind, format, maxlen, npred, available)</i>	Inquire Hatch Facilities
<b>GPQHMO</b>	<i>(wstype, start, number, errind, totnum, mode)</i>	Inquire Available HLHSR Modes
<b>GPQIDD</b>	<i>(wstype, class, devnum, id, lidata, idata, mlodata errind, mlodata, odata)</i>	Inquire Input Device Description
<b>GPQIDF</b>	<i>(wstype, start, number, errind, nimage, totnum, conn)</i>	Inquire Image Definition Facilities
<b>GPQIF</b>	<i>(wstype, start, numi, starth, numh, errind, innum, interiors, hatnum, hatch, npred)</i>	Inquire Interior Facilities
<b>GPQIMF</b>	<i>(wstype, start, number, errind, nprio, totnum, method)</i>	Inquire Image Mapping Facilities
<b>GPQISF</b>	<i>(wstype, class, device, start, number, errind, ncsid, csid)</i>	Inquire Input Character Set Facilities
<b>GPQIT</b>	<i>(wstype, class, devnum, start, number, errind, ntrigs, ltrigs)</i>	Inquire Input Trigger Capabilities
<b>GPQLCF</b>	<i>(wstype, number, ids, errind, data)</i>	Inquire List of Color Facilities
<b>GPQLI</b>	<i>(wstype, class, start, number, errind, ndev, dev)</i>	Inquire List of Logical Input Devices
<b>GPQLNR</b>	<i>(wstype, start, number, errind, totnum, rstyle)</i>	Inquire List of Line Rendering Styles
<b>GPQLSF</b>	<i>(wstype, start, number, errind, maxe, totnum, ltype, maxa, npred)</i>	Inquire Light Source Facilities
<b>GPQLTF</b>	<i>(wstype, errind, sections, maxlen, unit, npred, available)</i>	Inquire Linetype Facilities
<b>GPQLW</b>	<i>(wstype, errind, ltable, mtable, ttable, itable, etable, ptable, ctable)</i>	Inquire Length of Workstation State Tables
<b>GPQMTF</b>	<i>(wstype, errind, format, maxlen, npred, available)</i>	Inquire Marker Type Facilities
<b>GPQNCN</b>	<i>(wstype, errind, number)</i>	Inquire Number of Available Class Names
<b>GPQNSP</b>	<i>(wstype, errind, npr)</i>	Inquire Number of Structure Priorities Supported
<b>GPQNST</b>	<i>(wstype, class, devnum, errind, number)</i>	Inquire Number of Secondary Triggers
<b>GPQNV</b>	<i>(wstype, errind, number)</i>	Inquire Number of Definable View Table Entries
<b>GPQPAF</b>	<i>(wstype, errind, maxrow, maxcol, indexes)</i>	Inquire Pattern Facilities
<b>GPQPCR</b>	<i>(wstype, start, number, errind, npred, indexes, colors)</i>	Inquire Predefined Color Representation
<b>GPQPCS</b>	<i>(wstype, errind, csid)</i>	Inquire Primary Character Set
<b>GPQPDC</b>	<i>(wstype, category, device, number, errind, flags, type, totnum, vrange)</i>	Inquire Physical Device Characteristics
<b>GPQPER</b>	<i>(wstype, index, errind, edgefg, edgelt, edgesf, ecol)</i>	Inquire Predefined Edge Representation
<b>GPQPIR</b>	<i>(wstype, index, errind, style, sindex, icol)</i>	Inquire Predefined Interior Representation
<b>GPQPKT</b>	<i>(wstype, device, errind, type)</i>	Inquire Pick Measure Type

Name	Parameter	Long Name
GPQPLF	( <i>wstype, start, number, errind, ntype, ltype, nlwidth, lwidth, minlw, maxlw, npred</i> )	Inquire Polyline Facilities
GPQPLR	( <i>wstype, index, errind, ltype, lwidth, color</i> )	Inquire Predefined Polyline Representation
GPQPMF	( <i>wstype, start, number, errind, ntype, mtype, nsize, size, minms, maxms, npred</i> )	Inquire Polymarker Facilities
GPQPMR	( <i>wstype, index, errind, mtype, msize, color</i> )	Inquire Predefined Polymarker Representation
GPQPPR	( <i>wstype, index, maxrow, maxcol, errind, drow, dcol, array</i> )	Inquire Predefined Pattern Representation
GPQPTR	( <i>wstype, index, errind, font, prec, factor, space, color</i> )	Inquire Predefined Text Representation
GPQRCM	( <i>wstype, start, number, errind, totnum, model</i> )	Inquire Available Rendering Color Models
GPQSDF	( <i>wstype, start, number, errind, order, totnum, criteria</i> )	Inquire Surface Display Facilities
GPQSPD	( <i>wstype, class, ldevice, errind, category, pdevice</i> )	Inquire Source Physical Device
GPQTDF	( <i>wstype, start, number, errind, order, totnum, criteria</i> )	Inquire Trimming Curve Display Facilities
GPQTMO	( <i>wstype, start, number, errind, totnum, mode</i> )	Inquire Available Transparency Modes
GPQVF	( <i>wstype, errind, shield</i> )	Inquire View Facilities
GPQWC	( <i>wstype, errind, type</i> )	Inquire Workstation Category
GPQWD	( <i>wstype, errind, type</i> )	Inquire Workstation Display Classification
GPQWDT	( <i>wstype, id, lidata, idata, mldata, errind, lodata, odata</i> )	Inquire Workstation Description
GPQWTO	( <i>wsid, ilen, errind, wstype, olen, options</i> )	Inquire Workstation Type and Options
GPQXCF	( <i>wstype, start, number, errind, charact, nmax, lmax, totnum, model</i> )	Inquire Extended Color Facilities
GPQXTX	( <i>wstype, errind, npred, filled, proportional</i> )	Inquire Extended Text Facilities

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## PDT Inquiries

Name	Parameter	Long Name
GPQAI	( <i>start, number, errind, totnum, format</i> )	Inquire List of Available Application Image Formats
GPQCMM	( <i>start, number, errind, totnum, conn</i> )	Inquire List of Available Connection Methods

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## PSL Inquiries

Name	Parameter	Long Name
GPQASV	( <i>state</i> )	Inquire Archive State Value
GPQATR	( <i>ncid, type, start, number, errind, totnum, id</i> )	Inquire List of Attached Resources
GPQCEV	( <i>major, class, minor</i> )	Inquire Current Event
GPQCNC	( <i>start, number, errind, totnum, ncid</i> )	Inquire List of Connected Nuclei
GPQCS	( <i>csid</i> )	Inquire Character Set Identifier
GPQDCM	( <i>model</i> )	Inquire Direct Color Model
GPQEDM	( <i>mode</i> )	Inquire Edit Mode
GPQEMO	( <i>mode</i> )	Inquire Error Handling Mode
GPQEMS	( <i>length, errind, number, message</i> )	Inquire Error Message
GPQFAR	( <i>csid, font, slength, string, errind, aspect-ratio-list</i> )	Inquire Font Aspect Ratios
GPQFCH	( <i>csid, font, errind, proportional, top, bottom, nomaspect</i> )	Inquire Font Characteristics
GPQIBC	( <i>ibid, errind, depth, h, v</i> )	Inquire Image Board Characteristics
GPQIQO	( <i>errind, major, class, minor</i> )	Inquire Input Queue Overflow

Name	Parameter	Long Name
GPQNCC	( <i>ncid, state</i> )	Inquire Nucleus Connection State
GPQNCR	( <i>type, id, errind, ncid, rid</i> )	Inquire Nucleus Resource Identifier
GPQOPW	( <i>start, number, errind, totnum, lwsid</i> )	Inquire Set of Open Workstations
GPQSEV	( <i>simevnt</i> )	Inquire More Simultaneous Events
GPQSH	( <i>ncid, errind, shid, env</i> )	Inquire Shell Identifier
GPQSHD	( <i>deferral, update</i> )	Inquire Shell Deferral State
GPQSPL	( <i>level</i> )	Inquire Shell Product Level
GPQSSS	( <i>status, ssid</i> )	Inquire Selected Structure Store
GPQSTV	( <i>state</i> )	Inquire Structure State Value
GPQSYV	( <i>state</i> )	Inquire System State Value
GPQWSV	( <i>state</i> )	Inquire Workstation State Value

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## NDT Inquiries

Name	Parameter	Long Name
GPQIBF	( <i>ncid, start, number, errind, totnum, depth, h, v</i> )	Inquire Image Board Facilities
GPQNCE	( <i>ncid, length, datatype, errind, hardware, datalen, data</i> )	Inquire Nucleus Environment
GPQNS	( <i>ncid, ilen, errind, conn, olen, spec</i> )	Inquire Nucleus Specification
GPQPO	( <i>ncid, type, start, number, errind, totnum, op</i> )	Inquire Available Pixel Operations
GPQWTN	( <i>ncid, start, number, errind, maxa, totnum, wstype</i> )	Inquire List of Available Workstation Types on Nucleus

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## NSL Inquiries

Name	Parameter	Long Name
GPQNCS	( <i>ncid, errind, size</i> )	Inquire Available Nucleus Storage Size

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## SSL Inquiries

Name	Parameter	Long Name
GPELS	( <i>strid, start, direction, inclnum, lincl, exclnum, lexcl, errind, status, position, header</i> )	Element Search
GPQACS	( <i>ssid, start, number, errind, totnum, istrid</i> )	Inquire All Conflicting Structures in Structure Store
GPQCSN	( <i>ssid, strid, source, start, number, errind, totnum, istrid</i> )	Inquire All Conflicting Structures in Network in Structure Store
GPQED	( <i>number, buflen, errind, actnum, actlen, data, termcond</i> )	Inquire List of Element Data
GPQEDA	( <i>strid, start, number, buflen, errind, actnum, actlen, data, termcond</i> )	Inquire List of Element Data for any Structure
GPQEHA	( <i>strid, start, number, errind, actnum, header</i> )	Inquire List of Element Headers for Any Structure
GPQEHD	( <i>number, errind, actnum, header</i> )	Inquire List of Element Headers
GPQEP	( <i>errind, value</i> )	Inquire Element Pointer
GPQEXS	( <i>strid, start, number, errind, totnum, istrid</i> )	Inquire Executed Structures
GPQISN	( <i>strid, start, number, errind, totnum, istrid</i> )	Inquire Identifiers of Structures in Network
GPQOPS	( <i>type, strid</i> )	Inquire Open Structure
GPQPAS	( <i>strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond</i> )	Inquire Ancestors of Structure



Name	Parameter	Long Name
GPQPDS	( <i>strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond</i> )	Inquire Descendents of Structure
GPQRST	( <i>strid, start, number, errind, totnum, istrid</i> )	Inquire Referencing Structures
GPQSTI	( <i>start, number, errind, totnum, lstrid</i> )	Inquire Structure Identifiers
GPQSTS	( <i>strid, errind, flag, count</i> )	Inquire Structure Status
GPQWSA	( <i>strid, start, number, errind, totnum, lwsid</i> )	Inquire Set of Workstations to Which Associated

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## Archive Inquiries

Name	Parameter	Long Name
GPQACA	( <i>arid, start, number, errind, totnum, idstrid</i> )	Inquire All Conflicting Structures in Archive
GPQARF	( <i>start, number, buflen, errind, actnum, totnum, arlist, termcond</i> )	Inquire Archive Files
GPQCNA	( <i>arid, strid, source, start, number, errind, totnum, istrid</i> )	Inquire Conflicting Structures in Network in Archive
GPQCNR	( <i>aflag, rflag</i> )	Inquire Conflict Resolution
GPRAS	( <i>arid, strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond</i> )	Retrieve Ancestors to Structures
GPRDS	( <i>arid, strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond</i> )	Retrieve Descendants to Structures
GPRISN	( <i>arid, strid, start, number, errind, totnum, istrid</i> )	Retrieve Identifiers of Structures in Network
GPRSTI	( <i>arid, start, number, errind, totnum, istrid</i> )	Retrieve Structure Identifiers

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## Compatibility Subroutines

Name	Parameter	Long Name
GPCR	( <i>wsid, index, number, colors</i> )	Set Color Representation
GPEPLB	( <i>label</i> )	Set Element Pointer at Label
GPEPPK	( <i>pickid</i> )	Set Element Pointer at Pick Identifier
GPER	( <i>wsid, index, edgefg, edgelt, edgesf, ecol</i> )	Set Edge Representation
GPIR	( <i>wsid, index, style, sindex, ico</i> )	Set Interior Representation
GPPLR	( <i>wsid, index, ltype, lwidth, color</i> )	Set Polyline Representation
GPPMR	( <i>wsid, index, mtype, msize, color</i> )	Set Polymarker Representation
GPQABK	( <i>wsid, start, number, errind, ntrigs, ltrigs</i> )	Inquire Actual Break Capabilities
GPQACF	( <i>wsid, errind, model, ncolor, avcolor</i> )	Inquire Actual Color Facilities
GPQADS	( <i>wsid, errind, units, csize, asize</i> )	Inquire Actual Maximum Display Surface Size
GPQAEF	( <i>wsid, start, number, errind, ntype, eltype, nelwidth, elwidth, minelw, maxelw</i> )	Inquire Actual Edge Facilities
GPQAES	( <i>wsid, start, number, errind, nids, idlist</i> )	Inquire List of Actual Available Escape Subroutines
GPQAFC	( <i>wsid, csid, font, start, num, errind, prec, nomh, nahsf, lahsf, Infac, lmnfac, lmxfac</i> )	Inquire Annotation Font Characteristics
GPQAFP	( <i>wsid, errind, poolsize</i> )	Inquire Actual Font Pool Size
GPQAGD	( <i>wsid, start, number, errind, ngdp, lgdp</i> )	Inquire List of Actual Generalized Drawing Primitives
GPQAIF	( <i>wsid, startp, nump, starth, numh, errind, intnum, interiors, hatnum, hatch</i> )	Inquire Actual Interior Facilities

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPQAIS</b>	<i>(wsid, class, device, start, number, errind, ncsid, csid)</i>	Inquire Actual Input Character Set Facilities
<b>GPQAIT</b>	<i>(wsid, class, devnum, start, number, errind, ntrigs, ltrigs)</i>	Inquire Actual Input Trigger Capabilities
<b>GPQALF</b>	<i>(wsid, start, number, errind, ntype, ltype, nlwidth, lwidth, minlw, maxlw)</i>	Inquire Actual Polyline Facilities
<b>GPQALI</b>	<i>(wsid, class, start, number, errind, ndev, dev)</i>	Inquire List of Actual Logical Input Devices
<b>GPQALW</b>	<i>(wsid, errind, ltable, mtable, ttable, itable, etable, ptable, ctable)</i>	Inquire Actual Length of Workstation State Tables
<b>GPQAMF</b>	<i>(wsid, start, number, errind, ntype, mtype, nsize, size, minms, maxms)</i>	Inquire Actual Polymarker Facilities
<b>GPQANV</b>	<i>(wsid, errind, number)</i>	Inquire Actual Number of Definable View Table Entries
<b>GPQAPF</b>	<i>(wsid, errind, maxrow, maxcol)</i>	Inquire Actual Pattern Facilities
<b>GPQAPS</b>	<i>(wsid, errind, csid)</i>	Inquire Actual Primary Character Set
<b>GPQAVF</b>	<i>(wsid, errind, shield)</i>	Inquire Actual View Facilities
<b>GPQAWC</b>	<i>(wsid, errind, type)</i>	Inquire Actual Workstation Category
<b>GPQAWD</b>	<i>(wsid, errind, type)</i>	Inquire Actual Workstation Display Classification
<b>GPQCR</b>	<i>(wsid, start, number, type, errind, colors)</i>	Inquire Color Representation
<b>GPQCVX</b>	<i>(wsid, view, errind, matrix, window, viewpt, viewt, refpt, dist, near, far, wincp, nearcp, farcp, shield, shldci, border, brdrci, viewact)</i>	Inquire Current Viewing Transformation
<b>GPQE</b>	<i>(start, number, errind, ndata, data)</i>	Inquire Element Content
<b>GPQER</b>	<i>(wsid, index, type, errind, edgefg, edgelt, edgesf, ecol)</i>	Inquire Edge Representation
<b>GPQETS</b>	<i>(errind, type, size)</i>	Inquire Element Type and Size
<b>GPQIR</b>	<i>(wsid, index, type, errind, style, sindex, icol)</i>	Inquire Interior Representation
<b>GPQLR</b>	<i>(wsid, index, type, errind, ltype, lwidth, color)</i>	Inquire Polyline Representation
<b>GPQMR</b>	<i>(wsid, index, type, errind, mtype, msize, color)</i>	Inquire Polymarker Representation
<b>GPQRVX</b>	<i>(wsid, view, errind, matrix, window, viewpt, viewt, refpt, dist, near, far, wincp, nearcp, farcp, shield, shldci, border, brdrci, viewact)</i>	Inquire Requested Viewing Transformation
<b>GPQSTE</b>	<i>(strid, flag)</i>	Inquire Structure Existence
<b>GPQTR</b>	<i>(wsid, index, type, errind, font, prec, factor, space, color)</i>	Inquire Text Representation
<b>GPQTXF</b>	<i>(wstype, errind, npred)</i>	Inquire Text Facilities
<b>GPQWCT</b>	<i>(wsid, errind, connid, wstype)</i>	Inquire Workstation Connection and Type
<b>GPQWCV</b>	<i>(wstype, start, number, errind, totnum, flist)</i>	Inquire Workstation Configuration Variability
<b>GPQWST</b>	<i>(start, number, errind, maxopen, nwstype, wstype)</i>	Inquire List of Available Workstation Types
<b>GPTXR</b>	<i>(wsid, index, font, prec, factor, space, color)</i>	Set Text Representation
<b>GPVCH</b>	<i>(wsid, view, window, near, far, shield, shldci, border, brdrci, active)</i>	Set View Characteristics
<b>GPVMP2</b>	<i>(wsid, view, window, viewpt)</i>	Set View Mapping 2
<b>GPVMP3</b>	<i>(wsid, view, window, viewpt, type, point, dist, near, far)</i>	Set View Mapping 3
<b>GPVMT2</b>	<i>(wsid, view, matrix)</i>	Set View Matrix 2
<b>GPVMT3</b>	<i>(wsid, view, matrix)</i>	Set View Matrix 3

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## Distributed Application Processing (DAP)

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPEXAP</b>	<i>(apid, ncid, size, namel, name, parmt, parml, parm, xferflag, useridl, userid, password, password)</i>	Execute Application Process
<b>GPINAP</b>	<i>(apid, ncid, size, namel, name, parmt, parml, parm)</i>	Initiate Application Process
<b>GPTMAP</b>	<i>(apid)</i>	Terminate Application Process

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## Explicit Traversal

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPATS</b>	<i>(strid, start, end)</i>	Accumulate Traversal State
<b>GPBGST</b>	<i>(strid)</i>	Begin Structure
<b>GPBGTR</b>	<i>(wsid, view, type, data)</i>	Begin Traversal
<b>GPCARR</b>	<i>(wsid)</i>	Clear All Rendering Resources
<b>GPCPVP</b>	<i>(wsid, view, srtspec, drtspec)</i>	Copy Viewport
<b>GPCRT</b>	<i>(wsid, rtspec)</i>	Clear Rendering Target
<b>GPCVW</b>	<i>(wsid, view)</i>	Clear View
<b>GPDR12</b>	<i>(index, origin, size, P, Q, R, method)</i>	Draw Image 2
<b>GPDR1T</b>	<i>(wsid, rtspec)</i>	Display Rendering Target
<b>GPDRVW</b>	<i>(wsid, view)</i>	Draw View
<b>GPENST</b>		End Structure
<b>GPENTR</b>		End Traversal
<b>GPPSTS</b>	<i>(strid)</i>	Push Set TSL
<b>GPPTS</b>		Pop TSL
<b>GPSRT</b>	<i>(wsid, rtspec)</i>	Select Rendering Target
<b>GPTE</b>	<i>(strid, start, end)</i>	Traversal Elements



## Chapter 3. graPHIGS API Subroutine Functions (Alphabetical)

Name	Parameter	Long Name
GPAAL	( <i>horiz, vert</i> )	Set Annotation Alignment
GPACFO	( <i>wsid, csid, font</i> )	Activate Font
GPADCN	( <i>number, names</i> )	Add Class Name to Set
GPAFDW	( <i>wsid, fdid</i> )	Associate Font Directory with Workstation
GPAH	( <i>height</i> )	Set Annotation Height
GPAHSC	( <i>factor</i> )	Set Annotation Height Scale Factor
GPAID	( <i>antid</i> )	Set Antialiasing Identifier
GPAN2	( <i>point, length, text</i> )	Annotation Text 2
GPAN3	( <i>point, length, text</i> )	Annotation Text 3
GPANR2	( <i>refpt, textvec, length, text</i> )	Annotation Text Relative 2
GPANR3	( <i>refpt, textvec, length, text</i> )	Annotation Text Relative 3
GPAPT	( <i>path</i> )	Set Annotation Path
GPAS	( <i>style</i> )	Set Annotation Style
GPASV	( <i>number, id, flag</i> )	Attribute Source Flag Setting
GPASSW	( <i>wsid, ssid</i> )	Associate Structure Store with Workstation
GPATR	( <i>type, id, ncid, rid, pass</i> )	Attach Resource
GPATS	( <i>strid, start, end</i> )	Accumulate Traversal State
GPAUP	( <i>vector</i> )	Set Annotation Up Vector
GPAWEV	( <i>time, major, class, minor</i> )	Await Event
GPBBLF	( <i>srcf, destf</i> )	Set Back Blending Function
GPBDFM	( <i>minfm, magfm, boundu, boundv</i> )	Set Back Data Filtering Method
GPBDMF	( <i>flength, fdata</i> )	Set Back Data Morphing Factors
GPBDMI	( <i>index</i> )	Set Back Data Mapping Index
GPBDM2	( <i>matrix</i> )	Set Back Data Mapping Matrix 2
GPBGST	( <i>strid</i> )	Begin Structure
GPBGTR	( <i>wsid, view, type, data</i> )	Begin Traversal
GPBICD	( <i>color</i> )	Set Back Interior Color Direct
GPBICI	( <i>index</i> )	Set Back Interior Color Index
GPBISM	( <i>method</i> )	Set Back Interior Shading Method
GPBKAC	( <i>wsid, trigger</i> )	Set Break Action
GPBLF	( <i>srcf, destf</i> )	Set Blending Function
GPBRMO	( <i>model</i> )	Set Back Reflectance Model
GPBSCD	( <i>color</i> )	Set Back Specular Color Direct
GPBSCI	( <i>index</i> )	Set Back Specular Color Index
GPBSPR	( <i>amb, diff, spec, exp, trans</i> )	Set Back Surface Properties
GPBTCO	( <i>coeff</i> )	Set Back Transparency Coefficient
GPCAC	( <i>criteria, value</i> )	Set Curve Approximation Criteria
GPCAI	( <i>wsid, index</i> )	Cancel Image
GPCARR	( <i>wsid</i> )	Clear All Rendering Resources
GPCCM	( <i>mode</i> )	Set Convexity Checking Mode
GPCCV	( <i>wsid, ctype, ptype, number, ilist, errind, olist</i> )	Convert Coordinate Values
GPCEDT	( <i>flag</i> )	Conditional Editing
GPCEXS	( <i>mask, crit, mode, strid</i> )	Conditional Execute Structure
GPCFA2	( <i>ncontour, ncurve, curveinfo, knot, tess, vwidth, vdata</i> )	Composite Fill Area 2
GPCHH	( <i>height</i> )	Set Character Height
GPCHL2	( <i>startp, endp, nomhgt, char</i> )	Character Line 2

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPCHLS	( <i>scale</i> )	Set Character Line Scale Factor
GPCHMO	( <i>wsid, device, mode, echosw</i> )	Set Choice Mode
GPCHPM	( <i>posmode</i> )	Set Character Positioning Mode
GPCHSP	( <i>space</i> )	Set Character Spacing
GPCHUB	( <i>up,base</i> )	Set Character Up and Base Vectors
GPCHUP	( <i>up</i> )	Set Character Up Vector
GPCHXP	( <i>expans</i> )	Set Character Expansion Factor
GPCIM2	( <i>wsid, imap, view, index, origin, size, P, Q, R, method, prior</i> )	Create Image Mapping 2
GPCIM3	( <i>wsid, imap, view, index, origin, size, P, Q, R, method, prior</i> )	Create Image Mapping 3
GPCLAR	( <i>arid</i> )	Close Archive File
GPCLPH		Close graPHIGS
GPCLST		Close Structure
GPCLWS	( <i>wsid</i> )	Close Workstation
GPCML	( <i>wsid, model</i> )	Set Color Model
GPCMT2	( <i>matra, matr, matrix</i> )	Compose Matrix 2
GPCMT3	( <i>matra, matr, matrix</i> )	Compose Matrix 3
GPCNC	( <i>ncid, conn, len, spec</i> )	Connect Nucleus
GPCNRS	( <i>aflag, rflag</i> )	Set Conflict Resolution
GPCOND	( <i>on, off</i> )	Set Condition
GPCPER	( <i>strid, elem1, elem2</i> )	Copy Element Range
GPCPI	( <i>index</i> )	Set Color Processing Index
GPCPR	( <i>wsid, index, model, quant, data</i> )	Set Color Processing Representation
GPCPST	( <i>strid</i> )	Copy Structure
GPCPVP	( <i>wsid, view, srtspec, drtspec</i> )	Copy Viewport
GPCR	( <i>wsid, index, number, colors</i> )	Set Color Representation
GPCR2	( <i>center, radius</i> )	Circle 2
GPCRA2	( <i>center, radius, startang, endang</i> )	Circular Arc 2
GPCRC	( <i>wsid, ctid, model, length</i> )	Create Color Table
GPCRET	( <i>mask, crit</i> )	Conditional Return
GPCRFD	( <i>fdid, ncid, fdtype, fdesc</i> )	Create Font Directory
GPCRIB	( <i>ibid, ncid, depth, h, v, ibtype, ibdesc</i> )	Create Image Board
GPCRSS	( <i>ssid, ncid, sstype, ssdesc</i> )	Create Structure Store
GPCRT	( <i>wsid, rtspec</i> )	Clear Rendering Target
GPCRWS	( <i>wsid, ncid, length, connid, wstype, option</i> )	Create Workstation
GPCSI	( <i>ostrid, rstrid</i> )	Change Structure Identifier
GPCSIR	( <i>ostrid, rstrid</i> )	Change Structure Identifier and References
GPCSR	( <i>wsid, index, size</i> )	Set Cull Size Representation
GPCSRS	( <i>ostrid, rstrid</i> )	Change Structure References
GPCUR	( <i>wsid, index, format, shape</i> )	Set Cursor Representation
GPCUS	( <i>wsid, ctype</i> )	Set Cursor Shape
GPCVD	( <i>datatype, env, origin, datalen, idata, odata</i> )	Convert Data
GPCVMT	( <i>matrix</i> )	Compute View Matrix
GPCVW	( <i>wsid, view</i> )	Clear View
GPDAFO	( <i>wsid, csid, font</i> )	Deactivate Font
GPDARW	( <i>wsid</i> )	Disassociate All Roots from Workstation
GPDASA	( <i>arid</i> )	Delete All Structures from Archive
GPDAST		Delete All Structures
GPDCI	( <i>index</i> )	Set Depth Cue Index
GPDCM	( <i>model</i> )	Set Direct Color Model
GPDCMM	( <i>wsid, method, length, data</i> )	Set Device Coordinate Mapping Method
GPDCR	( <i>wsid, index, id, value</i> )	Set Depth Cue Representation
GPDELB	( <i>label1, label2</i> )	Delete Element Between Labels
GPDF	( <i>wsid, defer, modif</i> )	Set Deferral State

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPDFCO	<i>(origin, zplane, up, matrix)</i>	Define Coordinate System
GPDFI	<i>(wsid, index, conn, ctid, nibid, libid)</i>	Define Image
GPDFM	<i>(minfm, magfm, boundu, boundv)</i>	Set Data Filtering Method
GPDIM	<i>(wsid, imap)</i>	Delete Image Mapping
GPDLG	<i>(wsid, ctid)</i>	Delete Color Table
GPDLN		Delete Element
GPDLER	<i>(label1, label2, option)</i>	Delete Element Group
GPDLFO	<i>(elem1, elem2)</i>	Delete Element Range
GPDLN	<i>(fdid, csid, font)</i>	Delete Font
GPDLN	<i>(strid)</i>	Delete Structure Network Conditionally
GPDLN	<i>(strid)</i>	Delete Structure Network
GPDLN	<i>(strid)</i>	Delete Structure
GPDMF	<i>(flength, fdata)</i>	Set Data Morphing Factors
GPDMI	<i>(index)</i>	Set Data Mapping Index
GPDMR	<i>(wsid, index, method, mdata, clengths, ctype, cdata)</i>	Set Data Mapping Representation
GPDM2	<i>(matrix)</i>	Set Data Matrix 2
GPDNC	<i>(ncid)</i>	Disconnect Nucleus
GPDPL2	<i>(npoint, width, pointlist, mdarray)</i>	Disjoint Polyline 2
GPDPL3	<i>(npoint, width, pointlist, mdarray)</i>	Disjoint Polyline 3
GPDRV	<i>(wsid, strid)</i>	Disassociate Root from All Views
GPDR2	<i>(index, origin, size, P, Q, R, method)</i>	Draw Image 2
GPDR	<i>(wsid, rtspec)</i>	Display Rendering Target
GPDRV	<i>(wsid, view, strid)</i>	Disassociate Root from View
GPDRV	<i>(wsid, view)</i>	Draw View
GPDRW	<i>(wsid, strid)</i>	Disassociate Root from Workstation
GPDSAR	<i>(arid, number, lstrid)</i>	Delete Structures from Archive
GPDSNA	<i>(arid, number, lstrid)</i>	Delete Structures Networks from Archive
GPDR	<i>(type, id)</i>	Detach Resource
GPEAV	<i>(wsid)</i>	Empty All Views
GPECD	<i>(color)</i>	Set Edge Color Direct
GPECI	<i>(index)</i>	Set Edge Color Index
GPEDMO	<i>(mode)</i>	Set Edit Mode
GPEF	<i>(edgefg)</i>	Set Edge Flag
GPEHND	<i>(error-handler)</i>	Define Error Handling Subroutine
GPEI	<i>(index)</i>	Set Edge Index
GPEL2	<i>(center, refv1, refv2)</i>	Ellipse 2
GPEL3	<i>(center, refv1, refv2)</i>	Ellipse 3
GPELA2	<i>(center, refv1, refv2, startv, endv)</i>	Elliptical Arc 2
GPELA3	<i>(center, refv1, refv1, startv, endv)</i>	Elliptical Arc 3
GPELOG	<i>(file)</i>	Error Logging
GPELS	<i>(strid, start, direction, inclnum, lincl, exclnum, lexcl, errind, status, position, header)</i>	Element Search
GPELT	<i>(edgelt)</i>	Set Edge Linetype
GPEMO	<i>(mode)</i>	Set Error Handling Mode
GPENST	<i>(mode)</i>	End Structure
GPENTR	<i>(wsud, strid)</i>	End Traversal
GPEP	<i>(label)</i>	Set Element Pointer at Label
GPEPCD	<i>(code)</i>	Locate Element Pointer at Element Code
GPEPD	<i>(wsid, category, device, value)</i>	Emulate Physical Device
GPEPLB	<i>(label)</i>	Set Element Pointer at Label
GPEPLG	<i>(label, flag)</i>	Generalized Set Element Pointer at Label
GPEPPG	<i>(pickid, flag)</i>	Generalized Set Element Pointer at Pick Identifier
GPEPPK	<i>(pickid)</i>	Set Element Pointer at Pick Identifier



<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPERS</b>	<i>(wsid, index, edgefg, edgelt, edgesf, ecol)</i>	Set Edge Representation
<b>GPES</b>	<i>(funcid, lidr, idr, mlodr, lodr, odr)</i>	Escape
<b>GPESC</b>	<i>(edgesf)</i>	Set Edge Scale Factor
<b>GPEST</b>	<i>(strid)</i>	Empty Structure
<b>GPEV</b>	<i>(wsid, view)</i>	Empty View
<b>GPEVHN</b>	<i>(event-handler, anchor)</i>	Define Event Handling Subroutine
<b>GPEVM2</b>	<i>(window, viewpt, errind, matrix)</i>	Evaluate View Mapping Matrix 2
<b>GPEVM3</b>	<i>(window, viewpt, type, point, dist, near, far, errind, matrix)</i>	Evaluate View Mapping Matrix 3
<b>GPEXAP</b>	<i>(apid, ncid, size, namel, name, parmt, parml, parm, xferflag, useridl, userid, password, password)</i>	Execute Application Process
<b>GPEXIT</b>	<i>(error-routine, severity)</i>	Specify an Error Exit and Error Threshold
<b>GPEXST</b>	<i>(strid)</i>	Execute Structure
<b>GPFBBC</b>	<i>(op, mask, value) .</i>	Set Frame Buffer Comparison
<b>GPFBM</b>	<i>(mask)</i>	Set Frame Buffer Protect Mask
<b>GPFDMO</b>	<i>(mode)</i>	Set Face Distinguish Mode
<b>GPFLEV</b>	<i>(wsid, class, device)</i>	Flush Device Event
<b>GPFLM</b>	<i>(flmeth)</i>	Set Face Lighting Method
<b>GPFRCT</b>	<i>(ibid, origin, size, value)</i>	Fill Rectangle
<b>GPFWEV</b>	<i>(wsid)</i>	Flush Workstation Event
<b>GPGLX2</b>	<i>(matrix)</i>	Set Global Transformation 2
<b>GPGLX3</b>	<i>(matrix)</i>	Set Global Transformation 3
<b>GPGTCH</b>	<i>(choice)</i>	Get Choice
<b>GPGTLC</b>	<i>(view, pos)</i>	Get Locator
<b>GPGTMS</b>	<i>(ilen, olen, string)</i>	Get Message
<b>GPGTPK</b>	<i>(length, depth, pickpath)</i>	Get Pick
<b>GPGTSK</b>	<i>(length, view, npoint, pointlist)</i>	Get Stroke
<b>GPGTST</b>	<i>(ilen, olen, string)</i>	Get String
<b>GPGTVL</b>	<i>(value)</i>	Get Valuator
<b>GPGTXC</b>	<i>(wsid, height, method)</i>	Set Geometric Text Culling
<b>GPGTXP</b>	<i>(maxdepth, view, point, modelling, depth, pickpath)</i>	Get Extended Pick
<b>GPGWIN</b>	<i>(ilen, olen, data)</i>	Get Window
<b>GPHID</b>	<i>(hlhsr)</i>	Set HLHSR Identifier
<b>GPHLCD</b>	<i>(color)</i>	Set Highlighting Color Direct
<b>GPHLCI</b>	<i>(index)</i>	Set Highlighting Color Index
<b>GPHLF</b>	<i>(wsid, inclen, incl, exclen, excl)</i>	Set Highlighting Filter
<b>GPHR</b>	<i>(wsid, hatch, format, length, data)</i>	Set Hatch Representation
<b>GPICD</b>	<i>(color)</i>	Set Interior Color Direct
<b>GPICI</b>	<i>(index)</i>	Set Interior Color Index
<b>GPICS</b>	<i>(wsid, class, device, csid)</i>	Set Input Character Set
<b>GPIDMO</b>	<i>(wsid, class, device, state, deact, echosw, trigger, break, reset)</i>	Set Input Device Mode
<b>GPIEC</b>	<i>(wsid, color)</i>	Set Input Echo Color
<b>GPII</b>	<i>(index)</i>	Set Interior Index
<b>GPINAD</b>	<i>(length, data)</i>	Insert Application Data
<b>GPINAP</b>	<i>(apid, ncid, size, namel, name, parmt, parml, parm)</i>	Initiate Application Process
<b>GPINCH</b>	<i>(wsid, device, choice, echo, area, datalen, data )</i>	Initialize Choice
<b>GPINLB</b>	<i>(label)</i>	Insert Label
<b>GPINLC</b>	<i>(wsid, device, view, pos, echo, area, datalen, data)</i>	Initialize Locator



<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPINPK</b>	<i>(wsid, device, depth, pickpath, echo, area, datalen, data, order)</i>	Initialize Pick
<b>GPINSK</b>	<i>(wsid, device, view, npoint, width, pointlist, echo, area, buflen, editpos, datalen, data)</i>	Initialize Stroke
<b>GPINST</b>	<i>(wsid, device, length, string, echo, area, buflen, cursor, datalen, data)</i>	Initialize String
<b>GPINVL</b>	<i>(wsid, device, ivalue, echo, area, lovalue, hivalue, datalen, data)</i>	Initialize Valuator
<b>GPIPKC</b>	<i>(wsid, device, state)</i>	Set Initial Pick Correlation State
<b>GPIR</b>	<i>(wsid, index, style, sindex, icol)</i>	Set Interior Representation
<b>GPIS</b>	<i>(style)</i>	Set Interior Style
<b>GPISI</b>	<i>(index)</i>	Set Interior Style Index
<b>GPISM</b>	<i>(method)</i>	Set Interior Shading Method
<b>GPIT</b>	<i>(wsid, class, devnum, listid, tnum, triglist)</i>	Set Input Device Trigger
<b>GPIVF</b>	<i>(wsid, inclen, incl, exclen, excl)</i>	Set Invisibility Filter
<b>GPLCMO</b>	<i>(wsid, device, mode, echosw)</i>	Set Locator Mode
<b>GPLDFO</b>	<i>(fdid, csid, font, option)</i>	Load Font
<b>GPLG2</b>	<i>(point, refv1, refv2, imin, imax, jmin, jmax)</i>	Line Grid 2
<b>GPLG3</b>	<i>(point, refv1, refv2, imin, imax, jmin, jmax)</i>	Line Grid 3
<b>GPLLCD</b>	<i>(color)</i>	Set Line-on-Line Color Direct
<b>GPLLCI</b>	<i>(index)</i>	Set Line-on-Line Color Index
<b>GPLMO</b>	<i>(mode)</i>	Set Lighting Calculation Mode
<b>GPLNR</b>	<i>(wsid, ltype, style, data)</i>	Set Linetype Rendering
<b>GPLSR</b>	<i>(wsid, index, type, color, data)</i>	Set Light Source Representation
<b>GPLSS</b>	<i>(nact, act, ndea, dea)</i>	Set Light Source State
<b>GPLT</b>	<i>(ltype)</i>	Set Linetype
<b>GPLTR</b>	<i>(wsid, ltype, number, list)</i>	Set Linetype Representation
<b>GPLWSC</b>	<i>(lwidth)</i>	Set Linewidth Scale Factor
<b>GPMCI</b>	<i>(indic)</i>	Set Modeling Clipping Indicator
<b>GPMCV2</b>	<i>(oper, number, lhspace)</i>	Set Modeling Clipping Volume 2
<b>GPMCV3</b>	<i>(oper, number, lhspace)</i>	Set Modeling Clipping Volume 3
<b>GPMG2</b>	<i>(point, refv1, refv2, imin, imax, jmin, jmax)</i>	Marker Grid 2
<b>GPMG3</b>	<i>(point, refv1, refv2, imin, imax, jmin, jmax)</i>	Marker Grid 3
<b>GPMLX2</b>	<i>(matrix, type)</i>	Set Modeling Transformation 2
<b>GPMLX3</b>	<i>(matrix, type)</i>	Set Modeling Transformation 3
<b>GPMSG</b>	<i>(wsid, length, text)</i>	Message
<b>GPMSPW</b>	<i>(ncid, pass)</i>	Set Message Password
<b>GPMSSC</b>	<i>(msize)</i>	Set Marker Size Scale Factor
<b>GPMT</b>	<i>(mtype)</i>	Set Marker Type
<b>GPMTR</b>	<i>(wsid, mtype, format, length, data)</i>	Set Marker Type Representation
<b>GPMVER</b>	<i>(elem1, elem2)</i>	Move Element Range
<b>GNBC2</b>	<i>(order, npoint, knot, tflags, tdata, cflags, cwidth, ctlpts, tmin, tmax)</i>	Non-Uniform B-Spline Curve 2
<b>GNBC3</b>	<i>(order, npoint, knot, tflags, tdata, cflags, cwidth, ctlpts, tmin, tmax)</i>	Non-Uniform B-Spline Curve 3
<b>GNBS</b>	<i>(uorder, vorder, unum, vnum, uknots, vknots, tflag, utdata, vtdata, cflags, cwidth, ctlpts, umin, umax, vmin, vmax)</i>	Non-Uniform B-Spline Surface
<b>GNLER</b>	<i>(re1, re2)</i>	Nullify Element Range
<b>GPOEP</b>	<i>(offset)</i>	Offset Element Pointer
<b>GPOPPH</b>	<i>(errfil, adib)</i>	Open graPHIGS
<b>GPOPAR</b>	<i>(arid, ncid, flag, length, ardesc)</i>	Open Archive File
<b>GPOPST</b>	<i>(strid)</i>	Open Structure
<b>GPOPWS</b>	<i>(wsid, connid, wstype)</i>	Open Workstation

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPPAR</b>	<i>(wsid, index, numrow, numcol, strow, strcol, nrow, ncol, array)</i>	Set Pattern Representation
<b>GPPDMO</b>	<i>(wsid, category, device, mode)</i>	Set Physical Device Mode
<b>GPPG2</b>	<i>(areas, npoint, width, pointlist)</i>	Polygon 2
<b>GPPG3</b>	<i>(areas, npoint, width, pointlist)</i>	Polygon 3
<b>GPPGC</b>	<i>(mode)</i>	Set Polygon Culling
<b>GPPGD2</b>	<i>(pflags, pdata, saflags, sawidth, sadata, vxflags, vxwidth, vxdata)</i>	Polygon 2 With Data
<b>GPPGD3</b>	<i>(pflags, pdata, saflags, sawidth, sadata, vxflags, vxwidth, vxdata)</i>	Polygon 3 With Data
<b>GPPHE</b>	<i>(nedge, edgelist)</i>	Polyhedron Edge
<b>GPPHEC</b>	<i>(mode)</i>	Set Polyhedron Edge Culling
<b>GPPKAP</b>	<i>(wsid, device, size)</i>	Set Pick Aperture
<b>GPPKF</b>	<i>(wsid, device, inclen, incl, exclen, excl)</i>	Set Pick Filter
<b>GPPKID</b>	<i>(pickid)</i>	Set Pick Identifier
<b>GPPKMO</b>	<i>(wsid, device, mode, echosw)</i>	Set Pick Mode
<b>GPPKSC</b>	<i>(wsid, device, criteria)</i>	Set Pick Selection Criteria
<b>GPPL2</b>	<i>(npoint, width, pointlist)</i>	Polyline 2
<b>GPPL3</b>	<i>(npoint, width, pointlist)</i>	Polyline 3
<b>GPPLCD</b>	<i>(color)</i>	Set Polyline Color Direct
<b>GPPLCI</b>	<i>(index)</i>	Set Polyline Color Index
<b>GPPLD3</b>	<i>(pflags, pdata, plflags, plwidth, pldata, vxflags, vxwidth, vxdata)</i>	Polyline Set 3 With Data
<b>GPPLET</b>	<i>(endtype)</i>	Set Polyline End Type
<b>GPPLI</b>	<i>(index)</i>	Set Polyline Index
<b>GPPLR</b>	<i>(wsid, index, ltype, lwidth, color)</i>	Set Polyline Representation
<b>GPPLSM</b>	<i>(method)</i>	Set Polyline Shading Method
<b>GPPM2</b>	<i>(npoint, width, pointlist)</i>	Polymarker 2
<b>GPPM3</b>	<i>(npoint, width, pointlist)</i>	Polymarker 3
<b>GPPMCD</b>	<i>(color)</i>	Set Polymarker Color Direct
<b>GPPMCI</b>	<i>(index)</i>	Set Polymarker Color Index
<b>GPPMI</b>	<i>(index)</i>	Set Polymarker Index
<b>GPPMR</b>	<i>(wsid, index, mtype, msize, color)</i>	Set Polymarker Representation
<b>GPPREC</b>	<i>(numi, iary, numr, rary, nums, swidth, lens, sary, mlodr, errind, lodr, datarec)</i>	Pack Data Record
<b>GPPSC</b>	<i>(type, data)</i>	Parametric Surface Characteristics
<b>GPPSTS</b>	<i>(strid)</i>	Push Set TSL
<b>GPPTS</b>		Pop TSL
<b>GPPW</b>	<i>(type, id, pass)</i>	Set Password
<b>GPPXL2</b>	<i>(point, pack, numrow, numcol, startrow, startcol, nrow, ncol, array)</i>	Pixel 2
<b>GPPXL3</b>	<i>(point, pack, numrow, numcol, startrow, startcol, nrow, ncol, array)</i>	Pixel 3
<b>GPQAAF</b>	<i>(wstype, attrib, start, number, errind, totnum, enum)</i>	Inquire Advanced Attribute Facilities
<b>GPQABK</b>	<i>(wsid, start, number, errind, ntrigs, ltrigs)</i>	Inquire Actual Break Capabilities
<b>GPQACA</b>	<i>(arid, start, number, errind, totnum, idstrid)</i>	Inquire All Conflicting Structures in Archive
<b>GPQACF</b>	<i>(wsid, errind, model, ncolor, avcolor)</i>	Inquire Actual Color Facilities
<b>GPQACS</b>	<i>(ssid, start, number, errind, totnum, istrid)</i>	Inquire All Conflicting Structures in Structure Store
<b>GPQADS</b>	<i>(wsid, errind, units, csize, asize)</i>	Inquire Actual Maximum Display Surface Size
<b>GPQAEF</b>	<i>(wsid, start, number, errind, ntype, eltype, nelwidth, elwidth, minelw, maxelw)</i>	Inquire Actual Edge Facilities
<b>GPQAES</b>	<i>(wsid, start, number, errind, nids, idlist)</i>	Inquire List of Actual Available Escape Subroutines

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPQAFC</b>	<i>(wsid, csid, font, start, num, errind, prec, nomh, nahsf, lahsf, lfac, lmfac, lmxfac)</i>	Inquire Annotation Font Characteristics
<b>GPQAFP</b>	<i>(wsid, errind, poolsize)</i>	Inquire Actual Font Pool Size
<b>GPQAGD</b>	<i>(wsid, start, number, errind, ngdp, lgdp)</i>	Inquire List of Actual Generalized Drawing Primitives
<b>GPQAI</b>	<i>(start, number, errind, totnum, format)</i>	Inquire List of Available Application Image Formats
<b>GPQAIF</b>	<i>(wsid, startp, nump, starth, numh, errind, intnum, interiors, hatnum, hatch)</i>	Inquire Actual Interior Facilities
<b>GPQAIS</b>	<i>(wsid, class, device, start, number, errind, ncsid, csid)</i>	Inquire Actual Input Character Set Facilities
<b>GPQAIT</b>	<i>(wsid, class, devnum, start, number, errind, ntrigs, ltrigs)</i>	Inquire Actual Input Trigger Capabilities
<b>GPQALF</b>	<i>(wsid, start, number, errind, ntype, ltype, nlwidth, lwidth, minlw, maxlw)</i>	Inquire Actual Polyline Facilities
<b>GPQALI</b>	<i>(wsid, class, start, number, errind, ndev, dev)</i>	Inquire List of Actual Logical Input Devices
<b>GPQALW</b>	<i>(wsid, errind, ltable, mtable, ttable, itable, etable, ptable, ctable)</i>	Inquire Actual Length of Workstation State Tables
<b>GPQAMF</b>	<i>(wsid, start, number, errind, ntype, mtype, nsize, size, minms, maxms)</i>	Inquire Actual Polymarker Facilities
<b>GPQAMO</b>	<i>(wstype, start, number, errind, totnum, mode)</i>	Inquire Available Antialiasing Modes
<b>GPQANF</b>	<i>(wstype, start, number, errind, totnum, styles)</i>	Inquire Annotation Facilities
<b>GPQANV</b>	<i>(wsid, errind, number)</i>	Inquire Actual Number of Definable View Table Entries
<b>GPQAPF</b>	<i>(wsid, errind, maxrow, maxcol)</i>	Inquire Actual Pattern Facilities
<b>GPQAPS</b>	<i>(wsid, errind, csid)</i>	Inquire Actual Primary Character Set
<b>GPQAR</b>	<i>(wsid, start, number, errind, totnum, strid)</i>	Inquire Set of Associated Roots
<b>GPQARF</b>	<i>(start, number, buflen, errind, actnum, totnum, arlist, termcond)</i>	Inquire Archive Files
<b>GPQART</b>	<i>(wstype, errind, totnum)</i>	Inquire Rendering Targets
<b>GPQASV</b>	<i>(state)</i>	Inquire Archive State Value
<b>GPQATR</b>	<i>(ncid, type, start, number, errind, totnum, id)</i>	Inquire List of Attached Resources
<b>GPQAVF</b>	<i>(wsid, errind, shield)</i>	Inquire Actual View Facilities
<b>GPQAWC</b>	<i>(wsid, errind, type)</i>	Inquire Actual Workstation Category
<b>GPQAWD</b>	<i>(wsid, errind, type)</i>	Inquire Actual Workstation Display Classification
<b>GPQBK</b>	<i>(wstype, start, number, errind, ntrigs, ltrigs)</i>	Inquire Break Capabilities
<b>GPQBKS</b>	<i>(wsid, errind, trigger)</i>	Inquire Break Action State
<b>GPQCCH</b>	<i>(wsid, ctid, errind, model, length)</i>	Inquire Color Table Characteristics
<b>GPQCDF</b>	<i>(wstype, start, number, errind, order, totnum, criteria)</i>	Inquire Curve Display Facilities
<b>GPQCEV</b>	<i>(major, class, minor)</i>	Inquire Current Event
<b>GPQCF</b>	<i>(wstype, errind, model, ncolor, avcolor, npred)</i>	Inquire Color Facilities
<b>GPQCH</b>	<i>(wsid, device, type, length, errind, mode, echosw, choice, echo, area, datalen, data)</i>	Inquire Choice Device State
<b>GPQCID</b>	<i>(wsid, start, number, errind, totnum, ctid)</i>	Inquire List of Color Table Identifiers
<b>GPQCML</b>	<i>(wsid, errind, model)</i>	Inquire Color Model
<b>GPQCMM</b>	<i>(start, number, errind, totnum, conn)</i>	Inquire List of Available Connection Methods
<b>GPQCNA</b>	<i>(arid, strid, source, start, number, errind, totnum, istrid)</i>	Inquire Conflicting Structures in Network in Archive
<b>GPQCNC</b>	<i>(start, number, errind, totnum, ncid)</i>	Inquire List of Connected Nuclei
<b>GPQCNR</b>	<i>(aflag, rflag)</i>	Inquire Conflict Resolution
<b>GPQCPF</b>	<i>(wstype, errind, number, npred)</i>	Inquire Color Processing Facilities
<b>GPQCPR</b>	<i>(wsid, index, errind, model, quant, data)</i>	Inquire Color Processing Representation
<b>GPQCQM</b>	<i>(wstype, start, number, errind, totnum, method)</i>	Inquire Available Color Quantization Methods

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPQCR	( <i>wsid, start, number, type, errind, colors</i> )	Inquire Color Representation
GPQCS	( <i>csid</i> )	Inquire Character Set Identifier
GPQCSF	( <i>wstype, errind, number, npred</i> )	Inquire Cull Size Facilities
GPQCSN	( <i>ssid, strid, source, start, number, errind, totnum, istrid</i> )	Inquire All Conflicting Structures in Network in Structure Store
GPQCSR	( <i>wsid, index, type, errind, size</i> )	Inquire Cull Size Representation
GPQCUF	( <i>wstype, start1, num1, start2, num2, errind, maxent, maxsize, totnum1, lformat, totnum2, lcursor, npred</i> )	Inquire Cursor Facilities
GPQCVE	( <i>wsid, start, number, errind, nview, view</i> )	Inquire Current View Table Entries Input
GPQCVO	( <i>wsid, start, number, errind, nview, view</i> )	Inquire Current View Table Entries Output
GPQCVR	( <i>wsid, view, number, ids, errind, data</i> )	Inquire Current View Representation
GPQCVX	( <i>wsid, view, errind, matrix, window, viewpt, viewt, refpt, dist, near, far, wincp, nearcp, farcp, shield, shldci, border, brdrci, viewact</i> )	Inquire Current Viewing Transformation
GPQDBK	( <i>wstype, errind, trigger</i> )	Inquire Default Break Action
GPQDCF	( <i>wstype, errind, number, npred</i> )	Inquire Depth Cue Facilities
GPQDCH	( <i>wstype, device, start, number, length, errind, choice, necho, echo, area, datalen, data</i> )	Inquire Default Choice Device Data
GPQDCM	( <i>model</i> )	Inquire Direct Color Model
GPQDCR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Depth Cue Representation
GPQDDV	( <i>wstype, errind, defer, modif</i> )	Inquire Default Deferral State Values
GPQDIT	( <i>wstype, class, devnum, listid, start, number, errind, ndtrigs, dtriglist</i> )	Inquire Default Input Device Triggers
GPQDLC	( <i>wstype, device, start, number, length, errind, dimen, pos, necho, echo, area, datalen, data</i> )	Inquire Default Locator Device Data
GPQDMR	( <i>wsid, index, llengths, ldata, errind, method, mdata, clengths, ctype, cdata</i> )	Inquire Data Mapping Representation
GPQDPK	( <i>wstype, device, start, number, length, errind, maxpath, necho, echo, area, datalen, data</i> )	Inquire Default Pick Device Data
GPQDS	( <i>wstype, errind, units, csize, asize</i> )	Inquire Maximum Display Surface Size
GPQDSK	( <i>wstype, device, start, number, length, errind, dimen, size, necho, echo, area, buflen, editpos, datalen, data</i> )	Inquire Default Stroke Device Data
GPQDST	( <i>wstype, device, start, number, length, errind, size, necho, echo, area, buflen, editpos, datalen, data</i> )	Inquire Default String Device Data
GPQDV	( <i>wsid, errind, defer, modif, dissurf, dsta</i> )	Inquire Deferral and Update State Values
GPQDVL	( <i>wstype, device, start, number, length, errind, ivalue, necho, echo, area, lovalue, hivalue, datalen, data</i> )	Inquire Default Valuator Device Data
GPQE	( <i>start, number, errind, ndata, data</i> )	Inquire Element Content
GPQED	( <i>number, buflen, errind, actnum, actlen, data, termcond</i> )	Inquire List of Element Data
GPQEDA	( <i>strid, start, number, buflen, errind, actnum, actlen, data, termcond</i> )	Inquire List of Element Data for any Structure
GPQEDM	( <i>mode</i> )	Inquire Edit Mode
GPQEF	( <i>wstype, start, number, errind, netype, eltype, nelwidth, elwidth, minelw, maxelw, npred</i> )	Inquire Edge Facilities
GPQEHA	( <i>strid, start, number, errind, actnum, header</i> )	Inquire List of Element Headers for any Structure
GPQEHD	( <i>number, errind, actnum, header</i> )	Inquire List of Element Headers
GPQEMO	( <i>mode</i> )	Inquire Error Handling Mode
GPQEMS	( <i>length, errind, number, message</i> )	Inquire Error Message
GPQEP	( <i>errind, value</i> )	Inquire Element Pointer

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPQER	( <i>wsid, index, type, errind, edgefg, edgelt, edgesf, ecol</i> )	Inquire Edge Representation
GPQES	( <i>wstype, start, number, errind, totnum, escid</i> )	Inquire List of Available Escape Subroutines
GPQETS	( <i>errind, type, size</i> )	Inquire Element Type and Size
GPQEXS	( <i>strid, start, number, errind, totnum, lstrid</i> )	Inquire Executed Structures
GPQFAR	( <i>csid, font, slength, string, errind, aspect-ratio-list</i> )	Inquire Font Aspect Ratios
GPQFBC	( <i>wstype, errind, org, n, depth</i> )	Inquire Frame Buffer Characteristics
GPQFCH	( <i>csid, font, errind, proportional, top, bottom, nomaspect</i> )	Inquire Font Characteristics
GPQFO	( <i>wsid, start, number, errind, nfont, lcsid, lfont</i> )	Inquire Active Fonts
GPQFP	( <i>wstype, errind, poolsize</i> )	Inquire Font Pool Size
GPQGD	( <i>wstype, start, number, errind, totnum, gdpid</i> )	Inquire List of Generalized Drawing Primitives
GPQGDP	( <i>wstype, gdpid, errind, number, list</i> )	Inquire Generalized Drawing Primitive
GPQGFC	( <i>wsid, csid, font, start, num, errind, prec, nhts, lhts, lnfac, lmnfac, lmxfac</i> )	Inquire Geometric Font Characteristics
GPQGSE	( <i>wstype, start, number, errind, totnum, gseid</i> )	Inquire List of Available GSEs
GPQHD	( <i>wstype, errind, depth</i> )	Inquire Maximum Hierarchy Depth GPQHD.
GPQHf	( <i>wstype, errind, format, maxlen, npred, available</i> )	Inquire Hatch Facilities
GPQHf	( <i>wsid, inlen, exlen, errind, inclen, incl, exlen, excl</i> )	Inquire Highlighting Filter
GPQHMO	( <i>wstype, start, number, errind, totnum, mode</i> )	Inquire Available HLHSR Modes
GPQHR	( <i>wsid, index, errind, format, length, data</i> )	Inquire Hatch Representation
GPQIBC	( <i>ibid, errind, depth, h, v</i> )	Inquire Image Board Characteristics
GPQIBF	( <i>ncid, start, number, errind, totnum, depth, h, v</i> )	Inquire Image Board Facilities
GPQICH	( <i>wsid, index, errind, conn, ctid, totnum, libid</i> )	Inquire Image Characteristics
GPQICS	( <i>wsid, class, device, errind, csid</i> )	Inquire Input Character Set
GPQID	( <i>wsid, class, device, errind, state, deact, echosw, trigger, break, reset</i> )	Inquire Input Device State
GPQIDD	( <i>wstype, class, devnum, id, lidata, idata, mlodata, errind, mlodata, odata</i> )	Inquire Input Device Description
GPQIDF	( <i>wstype, start, number, errind, nimage, totnum, conn</i> )	Inquire Image Definition Facilities
GPQIF	( <i>wstype, starti, numi, starth, numh, errind, intnum, interiors, hatnum, hatch, npred</i> )	Inquire Interior Facilities
GPQIMC	( <i>wsid, imid, errind, view, index, origin, size, P, Q, R, method, priority</i> )	Inquire Image Mapping Characteristics
GPQIMF	( <i>wstype, start, number, errind, nprio, totnum, method</i> )	Inquire Image Mapping Facilities
GPQIMI	( <i>wsid, index, start, number, errind, totnum, limid</i> )	Inquire Image Mapping of Image
GPQIMV	( <i>wsid, view, start, number, errind, totnum, limid</i> )	Inquire Image Mapping on View
GPQIMW	( <i>wsid, start, number, errind, totnum, limid</i> )	Inquire Image Mapping on Workstation
GPQIQO	( <i>errind, major, class, minor</i> )	Inquire Input Queue Overflow
GPQIR	( <i>wsid, index, type, errind, style, sindex, icol</i> )	Inquire Interior Representation
GPQISF	( <i>wstype, class, device, start, number, errind, ncsid, csid</i> )	Inquire Input Character Set Facilities
GPQISN	( <i>strid, start, number, errind, totnum, lstrid</i> )	Inquire Identifiers of Structures in Network
GPQIT	( <i>wstype, class, devnum, start, number, errind, ntrigs, ltrigs</i> )	Inquire Input Trigger Capabilities
GPQITS	( <i>wsid, class, devnum, listid, start, number, errind, ntrigs, ltrigs</i> )	Inquire Input Device Trigger State



<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPQIVF</b>	<i>(wsid, inlen, exlen, errind, inclen, incl, exclen, excl)</i>	Inquire Invisibility Filter
<b>GPQIW</b>	<i>(wsid, start, number, errind, totnum, lindex)</i>	Inquire List of Images on the Workstation
<b>GPQLC</b>	<i>(wsid, device, type, length, errind, mode, echosw, view, pos, echo, area, datalen, data)</i>	Inquire Locator Device State
<b>GPQLCF</b>	<i>(wstype, number, ids, errind, data)</i>	Inquire List of Color Facilities
<b>GPQLI</b>	<i>(wstype, class, start, number, errind, ndev, dev)</i>	Inquire List of Logical Input Devices
<b>GPQLNR</b>	<i>(wstype, start, number, errind, totnum, rstyle)</i>	Inquire List of Line Rendering Styles
<b>GPQLR</b>	<i>(wsid, index, type, errind, ltype, lwidth, color)</i>	Inquire Polyline Representation
<b>GPQLSF</b>	<i>(wstype, start, number, errind, maxe, totnum, ltype, maxa, npred)</i>	Inquire Light Source Facilities
<b>GPQLSR</b>	<i>(wsid, index, type, errind, lstyle, color, data)</i>	Inquire Light Source Representation
<b>GPQLTF</b>	<i>(wstype, errind, sections, maxlen, unit, npred, available)</i>	Inquire Linetype Facilities
<b>GPQLTR</b>	<i>(wsid, ltype, errind, number, pattern)</i>	Inquire Linetype Representation
<b>GPQLW</b>	<i>(wstype, errind, ltable, mtable, ttable, itable, etable, ptable, ctable)</i>	Inquire Length of Workstation State Tables
<b>GPQM3</b>	<i>(mflags, mdata, qflags, qwidth, qdata, vxflags, vxwidth, vxdata)</i>	Quadrilateral Mesh 3
<b>GPQMDS</b>	<i>(wsid, errind, units, csize, asize)</i>	Inquire Mapped Display Surface Size
<b>GPQMR</b>	<i>(wsid, index, type, errind, mtype, msize, color)</i>	Inquire Polymarker Representation
<b>GPQMTF</b>	<i>(wstype, errind, format, maxlen, npred, available)</i>	Inquire Marker Type Facilities
<b>GPQMTR</b>	<i>(wsid, mtype, errind, format, length, data)</i>	Inquire Marker Type Representation
<b>GPQNCC</b>	<i>(ncid, state)</i>	Inquire Nucleus Connection State
<b>GPQNCE</b>	<i>(ncid, length, datatype, errind, hardware, datalen, data)</i>	Inquire Nucleus Environment
<b>GPQNCN</b>	<i>(wstype, errind, number)</i>	Inquire Number of Available Class Names
<b>GPQNCR</b>	<i>(type, id, errind, ncid, rid)</i>	Inquire Nucleus Resource Identifier
<b>GPQNCS</b>	<i>(ncid, errind, size)</i>	Inquire Available Nucleus Storage Size
<b>GPQNS</b>	<i>(ncid, ilen, errind, conn, olen, spec)</i>	Inquire Nucleus Specification
<b>GPQNSP</b>	<i>(wstype, errind, npr)</i>	Inquire Number of Structure Priorities Supported
<b>GPQNST</b>	<i>(wstype, class, devnum, errind, number)</i>	Inquire Number of Secondary Triggers
<b>GPQNV</b>	<i>(wstype, errind, number)</i>	Inquire Number of Definable View Table Entries
<b>GPQOPS</b>	<i>(type, strid)</i>	Inquire Open Structure
<b>GPQOPW</b>	<i>(start, number, errind, totnum, lwsid)</i>	Inquire Set of Open Workstations
<b>GPQPAF</b>	<i>(wstype, errind, maxrow, maxcol, indexes)</i>	Inquire Pattern Facilities
<b>GPQPAR</b>	<i>(wsid, index, type, maxrow, maxcol, errind, drow, dcol, array)</i>	Inquire Pattern Representation
<b>GPQPAS</b>	<i>(strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond)</i>	Inquire Ancestors of Structure
<b>GPQPCR</b>	<i>(wstype, start, number, errind, npred, indexes, colors)</i>	Inquire Predefined Color Representation
<b>GPQPCS</b>	<i>(wstype, errind, csid)</i>	Inquire Primary Character Set
<b>GPQPDC</b>	<i>(wstype, category, device, number, errind, flags, type, totnum, vrange)</i>	Inquire Physical Device Characteristics
<b>GPQPDS</b>	<i>(strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond)</i>	Inquire Descendents of Structure
<b>GPQPER</b>	<i>(wstype, index, errind, edgefg, edgelt, edgesf, ecol)</i>	Inquire Predefined Edge Representation
<b>GPQPIR</b>	<i>(wstype, index, errind, style, sindex, icol)</i>	Inquire Predefined Interior Representation

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPQPK</b>	<i>(wsid, device, type, inlen, exlen, pathlen, length, errind, mode, echosw, inclen, incl, exlen, excl, depth, pickpath, echo, area, datalen, data, order)</i>	Inquire Pick Device State
<b>GPQPKA</b>	<i>(wsid, device, errind, size)</i>	Inquire Pick Aperture
<b>GPQPKT</b>	<i>(wstype, device, errind, type)</i>	Inquire Pick Measure Type
<b>GPQPLF</b>	<i>(wstype, start, number, errind, ntype, ltype, nlwidth, lwidth, minlw, maxlw, npred)</i>	Inquire Polyline Facilities
<b>GPQPLR</b>	<i>(wstype, index, errind, ltype, lwidth, color)</i>	Inquire Predefined Polyline Representation
<b>GPQPMF</b>	<i>(wstype, start, number, errind, ntype, mtype, nsize, size, minms, maxms, npred)</i>	Inquire Polymarker Facilities
<b>GPQPMR</b>	<i>(wstype, index, errind, mtype, msize, color)</i>	Inquire Predefined Polymarker Representation
<b>GPQPO</b>	<i>(ncid, type, start, number, errind, totnum, op)</i>	Inquire Available Pixel Operations
<b>GPQPPR</b>	<i>(wstype, index, maxrow, maxcol, errind, drow, dcol, array)</i>	Inquire Predefined Pattern Representation
<b>GPQPTR</b>	<i>(wstype, index, errind, font, prec, factor, space, color)</i>	Inquire Predefined Text Representation
<b>GPQRCM</b>	<i>(wstype, start, number, errind, totnum, model)</i>	Inquire Available Rendering Color Models
<b>GPQRCT</b>	<i>(wsid, ilen, errind, olen, connid, wstype)</i>	Inquire Realized Connection Type
<b>GPQRST</b>	<i>(strid, start, number, errind, totnum, lstrid)</i>	Inquire Referencing Structures GPQRST.
<b>GPQRV</b>	<i>(wsid, view, start, number, errind, totnum, strid, priority)</i>	Inquire Set of Roots in View
<b>GPQRVE</b>	<i>(wsid, start, number, errind, totnum, view)</i>	Inquire Requested View Table Entries Input
<b>GPQRVO</b>	<i>(wsid, start, number, errind, totnum, view)</i>	Inquire Requested View Table Entries Output
<b>GPQVRV</b>	<i>(wsid, view, number, ids, errind, data)</i>	Inquire Requested View Representation
<b>GPQRVX</b>	<i>(wsid, view, errind, matrix, window, viewpt, viewt, refpt, dist, near, far, wincp, nearcp, farcp, shield, shldci, border, brdrci, viewact)</i>	Inquire Requested Viewing Information
<b>GPQSDF</b>	<i>(wstype, start, number, errind, order, totnum, criteria)</i>	Inquire Surface Display Facilities
<b>GPQSEV</b>	<i>(simevnt)</i>	Inquire More Simultaneous Events
<b>GPQSH</b>	<i>(ncid, errind, shid, env)</i>	Inquire Shell Identifier
<b>GPQSHD</b>	<i>(deferral, update)</i>	Inquire Shell Deferral State
<b>GPQSK</b>	<i>(wsid, device, type, lenpts, length, errind, mode, echosw, view, npoint, pointarray, echo, area, buflen, editpos, datalen, data)</i>	Inquire Stroke Device State
<b>GPQSPD</b>	<i>(wstype, class, ldevice, errind, category, pdevice)</i>	Inquire Source Physical Device
<b>GPQSPL</b>	<i>(level)</i>	Inquire Shell Product Level
<b>GPQSSS</b>	<i>(status, ssid)</i>	Inquire Selected Structure Store
<b>GPQST</b>	<i>(wsid, device, type, slen, length, errind, mode, echosw, strlen, string, echo, area, buflen, editpos, datalen, data)</i>	Inquire String Device State
<b>GPQSTE</b>	<i>(strid, flag)</i>	Inquire Structure Existence
<b>GPQSTI</b>	<i>(start, number, errind, totnum, lstrid)</i>	Inquire Structure Identifiers
<b>GPQSTS</b>	<i>(strid, errind, flag, count)</i>	Inquire Structure Status
<b>GPQSTV</b>	<i>(state)</i>	Inquire Structure State Value
<b>GPQSYV</b>	<i>(state)</i>	Inquire System State Value
<b>GPQTDf</b>	<i>(wstype, start, number, errind, order, totnum, criteria)</i>	Inquire Trimming Curve Display Facilities
<b>GPQTMO</b>	<i>(wstype, start, number, errind, totnum, mode)</i>	Inquire Available Transparency Modes
<b>GPQTR</b>	<i>(wsid, index, type, errind, font, prec, factor, space, color)</i>	Inquire Text Representation
<b>GPQTXF</b>	<i>(wstype, errind, npred)</i>	Inquire Text Facilities
<b>GPQVF</b>	<i>(wstype, errind, shield)</i>	Inquire View Facilities

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
GPQVL	( <i>wsid, device, type, length, errind, mode, echosw, ivalue, echo, area, lovalue, hivalue, datalen, data</i> )	Inquire Valuator Device State
GPQVR	( <i>wsid, strid, start, number, errind, totnum, view</i> )	Inquire Set of Views Which Contain Root
GPQWC	( <i>wstype, errind, type</i> )	Inquire Workstation Category
GPQWCT	( <i>wsid, errind, connid, wstype</i> )	Inquire Workstation Connection and Type
GPQWCV	( <i>wstype, start, number, errind, totnum, flist</i> )	Inquire Workstation Configuration Variability
GPQWD	( <i>wstype, errind, type</i> )	Inquire Workstation Display Classification
GPQWDT	( <i>wstype, id, lidata, idata, mldata, errind, lodata, odata</i> )	Inquire Workstation Description
GPQWSA	( <i>strid, start, number, errind, totnum, lwsid</i> )	Inquire Set of Workstations to Which Associated
GPQWST	( <i>start, number, errind, maxopen, nwstype, wstype</i> )	Inquire List of Available Workstation Types
GPQWSU	( <i>wsid, errind, total, lgblock, numblks</i> )	Inquire Workstation Storage Utilization
GPQWSV	( <i>state</i> )	Inquire Workstation State Value
GPQWSX	( <i>wsid, errind, state, rwindow, cwindow, rviewpt, cviewpt</i> )	Inquire Workstation Transformation
GPQWTN	( <i>ncid, start, number, errind, maxa, totnum, wstype</i> )	Inquire List of Available Workstation Types on Nucleus
GPQWTO	( <i>wsid, ilen, errind, wstype, olen, options</i> )	Inquire Workstation Type and Options
GPQXAF	( <i>wsid, csid, font, start, num, errind, prec, nomh, nahsf, lahsf, lmfac, lmnfac, lmxfac, proportional, top, bottom, nomaspect</i> )	Inquire Extended Annotation Font Characteristics
GPQXCF	( <i>wstype, start, number, errind, charact, nmax, lmax, totnum, model</i> )	Inquire Extended Color Facilities
GPQXCR	( <i>wsid, ctid, start, number, type, errind, color</i> )	Inquire Extended Color Representation
GPQXER	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Edge Representation
GPQXIR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Interior Representation
GPQXLR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Polyline Representation
GPQXMR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Polymarker Representation
GPQXTR	( <i>wsid, index, type, number, ids, errind, data</i> )	Inquire Extended Text Representation
GPQXTX	( <i>wstype, errind, npred, filled, proportional</i> )	Inquire Extended Text Facilities
GPRAS	( <i>arid, strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond</i> )	Retrieve Ancestors to Structures
GPRAST	( <i>wsid, flag</i> )	Redraw All Structures
GPRCN	( <i>number, names</i> )	Remove Class Name from Set
GPRDFB	( <i>wsid, frame, sorigin, size, format, parm, torigin, data</i> )	Read Frame Buffer
GPRDS	( <i>arid, strid, order, depth, start, number, buflen, errind, actnum, actlen, totnum, data, termcond</i> )	Retrieve Descendants to Structures
GPRISN	( <i>arid, strid, start, number, errind, totnum, istrid</i> )	Retrieve Identifiers of Structures in Network
GPRMCV		Restore Modeling Clipping Volume
GPRMO	( <i>model</i> )	Set Reflectance Model
GPRNBS	( <i>uorder, vorder, unum, vnum, uknots, vknots, tflag, utdata, vtdata, cflags, cwidth, ctlpts, umin, umax, vmin, vmax, option, nelen</i> )	Reevaluate Non-Uniform B-Spline Surface
GPROTX	( <i>angle, matrix</i> )	Rotate X
GPROTY	( <i>angle, matrix</i> )	Rotate Y
GPROTZ	( <i>angle, matrix</i> )	Rotate Z
GPROT2	( <i>angle, matrix</i> )	Rotate 2
GPRQCH	( <i>wsid, device, status, choice</i> )	Request Choice



<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPRQLC</b>	<i>(wsid, device, status, view, pos)</i>	Request Locator
<b>GPRQPK</b>	<i>(wsid, device, length, status, depth, pickpath)</i>	Request Pick
<b>GPRQSK</b>	<i>(wsid, device, length, status, view, npoint, pointarray)</i>	Request Stroke
<b>GPRQST</b>	<i>(wsid, device, length, status, number, string)</i>	Request String
<b>GPRQVL</b>	<i>(wsid, device, status, value)</i>	Request Valuator
<b>GPRQXP</b>	<i>(wsid, device, maxdepth, status, view, point, modelling, depth, pickpath)</i>	Request Extended Pick
<b>GPRRCT</b>	<i>(sibid, sorigin, size, format, parm, torigin, data)</i>	Read Rectangle
<b>GPRSTI</b>	<i>(arid, start, number, errind, totnum, istrid)</i>	Retrieve Structure Identifiers
<b>GPRTNS</b>	<i>(uorder, vorder, unum, uknots, vknots, tflag, utess, vtess, cflags, cwidth, ctpts, ncontour, ncurve, curveinfo, tknot, ttess, cdwidth, cdata, option, nelem)</i>	Reevaluate Trimmed Non-Uniform B-Spline Surface
<b>GPRVAS</b>	<i>(arid)</i>	Retrieve All Structures
<b>GPRVSN</b>	<i>(arid, number, lstrid)</i>	Retrieve Structure Networks
<b>GPRVST</b>	<i>(arid, number, lstrid)</i>	Retrieve Structures
<b>GPSAC</b>	<i>(criteria, ctrlval1, ctrlval2)</i>	Set Surface Approximation Criteria
<b>GPSBMS</b>	<i>(ncid, major, minor, len, msg)</i>	Send Broadcast Message
<b>GPSCD</b>	<i>(color)</i>	Set Specular Color Direct
<b>GPSCI</b>	<i>(index)</i>	Set Specular Color Index
<b>GPSC2</b>	<i>(scale, matrix)</i>	Scale 2
<b>GPSC3</b>	<i>(scale, matrix)</i>	Scale 3
<b>GPSDAL</b>	<i>(wsid)</i>	Sound Alarm
<b>GPSHDF</b>	<i>(deferral, update)</i>	Set Shell Deferral State
<b>GPSKMO</b>	<i>(wsid, device, mode, echosw)</i>	Set Stroke Mode
<b>GPSMCH</b>	<i>(wsid, device, choice)</i>	Sample Choice
<b>GPSMLC</b>	<i>(wsid, device, view, pos)</i>	Sample Locator
<b>GPSMPK</b>	<i>(wsid, device, length, depth, pickpath)</i>	Sample Pick
<b>GPSMSK</b>	<i>(wsid, device, length, view, npoint, pointarray)</i>	Sample Stroke
<b>GPSMST</b>	<i>(wsid, device, length, number, string)</i>	Sample String
<b>GPSMVL</b>	<i>(wsid, device, value)</i>	Sample Valuator
<b>GPSMXP</b>	<i>(wsid, device, maxdepth, view, point, modelling, depth, pickpath)</i>	Sample Extended Pick
<b>GPSPH</b>	<i>(nsphere, pflags, pdata, width, spherelist)</i>	Polysphere
<b>GPSPMS</b>	<i>(ncid, shid, pass, major, minor, len, msg)</i>	Send Private Message
<b>GPSPR</b>	<i>(amb, diff, spec, exp, trans)</i>	Set Surface Properties
<b>GPSRT</b>	<i>(wsid, rtspec)</i>	Select Rendering Target
<b>GPSSS</b>	<i>(ssid)</i>	Select Structure Store
<b>GPSSTH</b>	<i>(ssid, threshold)</i>	Set Structure Store Threshold
<b>GPSTMO</b>	<i>(wsid, device, mode, echosw)</i>	Set String Mode
<b>GPSYNC</b>	<i>(ncid, synch)</i>	Synchronize
<b>GPTAST</b>	<i>(ssid, flag)</i>	Transfer All Structures
<b>GPTCAC</b>	<i>(criteria, ctrlval1, ctrlval2, ctrlval3)</i>	Set Trimming Curve Approximation Criteria
<b>GPTCO</b>	<i>(coeff)</i>	Set Transparency Coefficient
<b>GPTE</b>	<i>(strid, start, end)</i>	Traversal Elements
<b>GPTEX2</b>	<i>(point1, point2, index)</i>	Test Extent 2
<b>GPTEX3</b>	<i>(point1, point2, index)</i>	Test Extent 3
<b>GPTHPO</b>	<i>(tibid, torigin, size, sibid1, sorigin1, sibid2, sorigin2, op, opparm)</i>	Three Operand Pixel Operation
<b>GPTLWS</b>	<i>(lwidth)</i>	Set Text Line Width Scale Factor
<b>GPTMAP</b>	<i>(apid)</i>	Terminate Application Process

<b>Name</b>	<b>Parameter</b>	<b>Long Name</b>
<b>GPTNBS</b>	<i>(uorder, vorder, unum, vnum, uknots, vknots, tflag, utess, vtess, cflags, cwidth, ctlpts, ncontour, ncurve, curveinfo, tknot, ttess, cdwidth, cddata)</i>	Trimmed Non-Uniform B-Spline Surface
<b>GPTRCE</b>	<i>(control)</i>	Internal Trace Control
<b>GPTRCT</b>	<i>(tibid, toorigin, size, sibid, sorigin)</i>	Internal Trace Control
<b>GPTRL2</b>	<i>(vector, matrix)</i>	Translate 2
<b>GPTRL3</b>	<i>(vector, matrix)</i>	Translate 3
<b>GPTST</b>	<i>(ssid, flag, number, lstrid)</i>	Transfer Structures
<b>GPTS3</b>	<i>(pflags, pdata, tflags, twidth, tdata, vxflags, vxwidth, vxdata)</i>	Triangle Strip 3
<b>GPTWPO</b>	<i>(tibid, toorigin, size, sibid, sorigin, op, opparm)</i>	Two Operand Pixel Operation
<b>GPTX2</b>	<i>(point, length, text)</i>	Geometric Text 2
<b>GPTX3</b>	<i>(point, length, text, refv1, refv2)</i>	Geometric Text 3
<b>GPTXAL</b>	<i>(horiz, vert)</i>	Set Text Alignment
<b>GPTXCD</b>	<i>(color)</i>	Set Text Color Direct
<b>GPTXCI</b>	<i>(index)</i>	Set Text Color Index
<b>GPTXCS</b>	<i>(csid)</i>	Set Text Character Set
<b>GPTXFO</b>	<i>(font)</i>	Set Text Font
<b>GPTXI</b>	<i>(index)</i>	Set Text Index
<b>GPTXPR</b>	<i>(prec)</i>	Set Text Precision
<b>GPTXPT</b>	<i>(path)</i>	Set Text Path
<b>GPTXR</b>	<i>(wsid, index, font, prec, factor, space, color)</i>	Set Text Representation
<b>GPUPWA</b>	<i>(wsid)</i>	Update Workstation Asynchronous
<b>GPUPWS</b>	<i>(wsid, regen)</i>	Update Workstation
<b>GPVCH</b>	<i>(wsid, view, window, near, far, shield, shldci, border, brdrcl, active)</i>	Set View Characteristics
<b>GPVIP</b>	<i>(wsid, view, refview, flag)</i>	Set View Input Priority
<b>GPVLMO</b>	<i>(wsid, device, mode, echosw)</i>	Set Valuator Mode
<b>GPVMF</b>	<i>(flength, fdata)</i>	Set Vertex Morphing Factors
<b>GPVMP2</b>	<i>(wsid, view, window, viewpnt)</i>	Set View Mapping 2
<b>GPVMP3</b>	<i>(wsid, view, window, viewpnt, type, point, dist, near, far)</i>	Set View Mapping 3
<b>GPVMT2</b>	<i>(wsid, view, matrix)</i>	Set View Matrix 2
<b>GPVMT3</b>	<i>(wsid, view, matrix)</i>	Set View Matrix 3
<b>GPVOP</b>	<i>(wsid, view, refview, flag)</i>	Set View Output Priority
<b>GPVP</b>	<i>(wsid, view, refview, flag)</i>	Set View Priority
<b>GPVPLN</b>	<i>(normal)</i>	Set View Plane Normal
<b>GPVR</b>	<i>(point)</i>	Set View Reference Point
<b>GPVUP</b>	<i>(vector)</i>	Set View Up
<b>GPVWI</b>	<i>(index)</i>	Set View Index
<b>GPWDO</b>	<i>(length, data)</i>	Workstation-Dependent Output
<b>GPWRCT</b>	<i>(tibid, toorigin, size, format, parm, sorigin, data)</i>	Write Rectangle
<b>GPWSX2</b>	<i>(wsid, window, viewpnt)</i>	Set Workstation Transformation 2
<b>GPWSX3</b>	<i>(wsid, window, viewpnt)</i>	Set Workstation Transformation 3
<b>GPXCR</b>	<i>(wsid, ctid, start, number, color)</i>	Set Extended Color Representation
<b>GPXER</b>	<i>(wsid, index, id, value)</i>	Set Extended Edge Representation
<b>GPXF2</b>	<i>(point, matrix, result)</i>	Transform Point 2
<b>GPXF3</b>	<i>(point, matrix, result)</i>	Transform Point 3
<b>GPXIR</b>	<i>(wsid, index, id, value)</i>	Set Extended Interior Representation
<b>GPXPLR</b>	<i>(wsid, index, id, value)</i>	Set Extended Polyline Representation
<b>GPXPMR</b>	<i>(wsid, index, id, value)</i>	Set Extended Polymarker Representation
<b>GPXTXR</b>	<i>(wsid, index, id, value)</i>	Set Extended Text Representation
<b>GPXVCH</b>	<i>(wsid, view, number, charids, values)</i>	Set Extended View Characteristics
<b>GPXVR</b>	<i>(wsid, view, id, value)</i>	Set Extended View Representation

**Name**  
**GPZBM**

**Parameter**  
*(mask)*

**Long Name**  
Set Z-buffer Protect Mask



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## Chapter 4. Enumerated Data Types

Annotation Path	1 = RIGHT 2 = LEFT 3 = UP 4 = DOWN
Annotation Style	1 = UNCONNECTED 2 = LEAD_LINE
Antialiasing Mode	1 = OFF 2 = SUBPIXEL_ON_THE_FLY 3 = NON_SUBPIXEL_ON_THE_FLY
Application Image Format	1 = PIXEL_ARRAY
Advanced Attribute Group Identifier	1 = EDGE_FLAG 2 = FACE_DISTINGUISH_MODE 3 = LIGHTING_CALCULATION_MODE 4 = POLYGON_CULLING 5 = POLYHEDRON_EDGE_CULLING 6 = POLYLINE_END_TYPE 8 = INTERIOR_SHADING_METHODS 10 = REFLECTANCE_MODES
Archive State Value	1 = ARCL 2 = AROP
Attribute List	1 = POLYLINE 2 = POLYMARKER 3 = TEXT 4 = INTERIOR 5 = EDGE
Attribute Source Flag	1 = BUNDLED 2 = INDIVIDUAL
Border Indicator	1 = OFF 2 = ON
Boundary Flag	1 = NOT_AN_EDGE 2 = IS_AN_EDGE
Bounding Method	1 = CLAMP 2 = REPEAT
Break Switch	1 = OFF 2 = ON
Character Positioning Mode	1 = CONSTANT 2 = PROPORTIONAL
Clip Indicator	1 = NOCLIP 2 = CLIP
Color Model/Availability	1 = MONOCHROME 2 = COLOR
Color Model	1 = RGB 2 = HSV 3 = CMY 4 = CIELUV
Color Quantization Method	1 = WORKSTATION_DEPENDENT 2 = BITWISE
Color Table Characteristics	1 = NEITHER_MODIFIABLE 2 = ONLY_DISPLAY_COLOR_TABLE_MODIFIABLE 3 = ONLY_RENDERING_COLOR_TABLE_MODIFIABLE 4 = BOTH_MODIFIABLE
Color Table Identifier	-1 = DISPLAY_COLOR_TABLE 0 = RENDERING_COLOR_TABLE >0 = IMAGE_COLOR_TABLES

Conflict Resolution Flags	1 = MAINTAIN_FLAG 2 = ABANDON_FLAG 3 = UPDATE_FLAG
Connection Method	1 = CALL 2 = GAM 3 = SOCKETS
Connection State	1 = ACTIVE 2 = INACTIVE 3 = NON_EXISTENT
Control Flag	1 = CONDITIONALLY 2 = ALWAYS
Conversion Type	1 = NPC_TO_WU 2 = WU_TO_NPC 3 = DC_TO_WU 4 = WU_TO_DC
Convert Data Type	1 = CHARACTER_STRING 2 = FLOATS 3 = INTEGERS 4 = DATA_RECORD
Convexity Checking Mode	1 = OFF 2 = ON
Convexity Flag	1 = CONCAVE 2 = CONVEX
Curve Approximation Criteria	1 = WORKSTATION_DEPENDENT 3 = CONSTANT_SUBDIVISION_BETWEEN_KNOTS 8 = VARIABLE_SUBDIVISION_BETWEEN_KNOTS
Data Mapping Color Data Types	1 = TYPE_COLOR 2 = TYPE_PACKED_RGB 3 = TYPE_COLOR_TRANS 4 = TYPE_PACKED_RGB_ALPHA
Data Mapping Method	-1 = IMAGE_ARRAY 1 = DM_METHOD_COLOR 2 = SINGLE_VALUE_UNIFORM 4 = BI_VALUE_UNIFORM
Data Organization Format	1 = BASE_DATA 2 = SQUARE_MM 3 = RECT_MM
Deactivate Switch	1 = OFF 2 = ON
Deferral State	1 = ASAP 2 = BNIG 3 = BNIL 4 = ASTI 5 = WAIT
Delete Option	1 = START_AT_CURRENT_ELEMENT_NEITHER_DELETED 2 = START_AT_CURRENT_ELEMENT_BOTH_DELETED 3 = START_AT_CURRENT_ELEMENT_FIRST_DELETED 4 = START_AT_CURRENT_ELEMENT_SECOND_DELETED 5 = START_AT_NEXT_ELEMENT_NEITHER_DELETED 6 = START_AT_NEXT_ELEMENT_BOTH_DELETED 7 = START_AT_NEXT_ELEMENT_FIRST_DELETED 8 = START_AT_NEXT_ELEMENT_SECOND_DELETED
Depth Cue Mode	1 = SUPPRESSED 2 = ALLOWED
Depth Cue Representation Group Identifier	1 = DEPTH_CUE_MODE 2 = DEPTH_CUE_REFERENCE_PLANES 3 = DEPTH_CUE_SCALE_FACTORS 4 = DEPTH_CUE_COLOR

Destination Blending Function	1 = DSTBF_ZERO 2 = DSTBF_ONE 3 = DSTBF_SRC_ALPHA 4 = DSTBF_ONE_MINUS_SRC_ALPHA 5 = DSTBF_DST_ALPHA 6 = DSTBF_ONE_MINUS_DST_ALPHA 7 = DSTBF_SRC_COLOR 8 = DSTBF_ONE_MINUS_SRC_COLOR
Device Coordinate Units	1 = METERS 2 = OTHER
Device Event/Class	1 = LOCATOR 2 = STROKE 3 = VALUATOR 4 = CHOICE 5 = PICK 6 = STRING
Display Status	1 = CORRECT 2 = DEFERRED 3 = SIMULATED
Display Surface State	1 = NOT_EMPTY 2 = IS_EMPTY
Display Type	1 = VECTOR 2 = RASTER 3 = OTHERS
Echo Switch	1 = NOECHO 2 = ECHO
Edge Boundary Flag	1 = NOT_AN_EDGE 2 = IS_AN_EDGE
Edge Flag	1 = OFF 2 = ON 3 = GEOMETRY_ONLY
Edge Representation Group Identifier	1 = EDGE_FLAG 2 = EDGE_LINETYPE 3 = EDGE_LINEWIDTH_SCALE_FACTOR 4 = EDGE_COLOR
Edit Mode	1 = INSERT_MODE 2 = REPLACE_MODE
Error Handling Mode	1 = OFF 2 = ON
Event Queue Space Flag	0 = SPACE_AVAILABLE 1 = NO_MORE_SPACE_AVAILABLE
Event Queue Overflow Flag	0 = NOT_OVERFLOWED_YET 1 = ALREADY_OVERFLOWED
Face Distinguish Mode	1 = NONE 2 = COLOR_SURFACE_PROPERTIES
Face Lighting Method	1 = FACE_INDEPENDENT 2 = FACE_DEPENDENT
Font Characteristics	1 = FIXED 2 = PROPORTIONAL
Font Directory Type	1 = NORMAL
Font Option	2 = IBM_DEFINED_RANGE 3 = USER_DEFINED_RANGE
Font Support	1 = NOT_SUPPORTED 2 = SUPPORTED
Frame Buffer Comparison Options	1 = NO_OPERATION 2 = WRITE_WHEN_EQUAL 3 = WRITE_WHEN_NOT_EQUAL



Geometric Text Culling Method	1 = TEXT_DISPLAY 2 = BOX_DISPLAY 3 = NO_DISPLAY
Hardware Type	1 = RISC_6000 2 = IBM_6095 3 = IBM_370
Hatch Format	1 = BIT_ARRAY
Hatch/Line/Pattern Representation	1 = NOT_AVAILABLE 2 = BOTH_AVAILABLE 3 = INQUIRE_ONLY_AVAILABLE 4 = SET_ONLY_AVAILABLE
HLHSR Identifiers	1 = VISUALIZE_IF_NOT_HIDDEN 2 = VISUALIZE_IF_HIDDEN 3 = VISUALIZE_ALWAYS 4 = NOT_VISUALIZE 5 = FACE_DEPENDENT_VISUALIZATION 6 = NO_UPDATE 7 = GREATER_THAN 8 = EQUAL_TO 9 = LESS_THAN 10 = NOT_EQUAL 11 = LESS_THAN_OR_EQUAL_TO
HLHSR Mode	1 = OFF 2 = ON_THE_FLY
Horizontal Alignment	1 = NORMAL 2 = LEFT_ALIGN 3 = CENTER 4 = RIGHT_ALIGN
Image Board Type	1 = NORMAL
Image Connection Type	-1 = FRAME_BUFFER_COMPATIBLE 1 = COMPONENT 2 = INDEXED
Image Pixel Order	1 = LEFT_TO_RIGHT_BOTTOM_TO_TOP 2 = LEFT_TO_RIGHT_TOP_TO_BOTTOM
Interior Representation Group Identifier	1 = INTERIOR_STYLE 2 = INTERIOR_STYLE_INDEX 3 = INTERIOR_COLOR
Interior Shading Method	1 = SHADING_NONE 2 = SHADING_COLOR 3 = SHADING_DATA
Interior Style	1 = HOLLOW 2 = SOLID 3 = PATTERN 4 = HATCH 5 = EMPTY
Image Mapping Method	1 = PIXEL_BY_PIXEL
Label Deletion Option	1 = START_AT_CURRENT_ELEMENT_NEITHER_DELETED 2 = START_AT_CURRENT_ELEMENT_BOTH_DELETED 3 = START_AT_CURRENT_ELEMENT_FIRST_DELETED 4 = START_AT_CURRENT_ELEMENT_SECOND_DELETED 5 = START_AT_NEXT_ELEMENT_NEITHER_DELETED 6 = START_AT_NEXT_ELEMENT_BOTH_DELETED 7 = START_AT_NEXT_ELEMENT_FIRST_DELETED 8 = START_AT_NEXT_ELEMENT_SECOND_DELETED
Light Source Type	1 = AMBIENT 2 = DIRECTIONAL 3 = POSITIONAL 4 = SPOT

Lighting Calculation Mode	1 = NONE 2 = PER_AREA 3 = PER_VERTEX
Line Rendering Styles	1 = WORKSTATION_DEPENDENT_RENDERING 2 = SCALED_TO_FIT_RENDERING
Line/Hatch/Pattern Representation	1 = NOT_AVAILABLE 2 = BOTH_AVAILABLE 3 = INQUIRE_ONLY_AVAILABLE 4 = SET_ONLY_AVAILABLE
Line Types	1 = SOLID_LINE 2 = DASHED 3 = DOTTED 4 = DASH_DOT 5 = LONG_DASH 6 = DOUBLE_DOT 7 = DASH_DOUBLE_DOT 8-n = SOLID_LINE
Locator Device	1 = 2D 2 = 3D
Magnification Filtering Method	1 = SAMPLE_IN_BASE 2 = INTERP_IN_BASE
Marker Pattern Format	1 = VECTOR
Marker Types	1 = DOT 2 = PLUS_SIGN 3 = ASTERISK 4 = CIRCLE_T = DIAGONAL_CROSS 6-n = ASTERISK
Minification Filtering Method	1 = SAMPLE_IN_BASE 2 = INTERP_IN_BASE 3 = SAMPLE_IN_SQUARE_MM 4 = SAMPLE_IN_AND_INTERP_BTWN_SQUARE_MM 5 = INTERP_IN_SQUARE_MM 6 = INTERP_IN_AND_BTWN_SQUARE_MM 7 = SAMPLE_IN_RECT_MM 8 = SAMPLE_IN_AND_INTERP_BTWN_RECT_MM 9 = INTERP_IN_RECT_MM
Modeling Clipping Indicator	1 = NO_CLIP 2 = CLIP
Modeling Clipping Operator	1 = REPLACE_VOLUME 2 = INTERSECT_VOLUME
Modification Mode	1 = NO_IMMEDIATE_VISUAL_EFFECT 2 = UPDATE_WITHOUT_REGENERATION 3 = QUICK_UPDATE
Move/Draw Indicators	1 = MOVE 2 = DRAW
Open Structure Type	1 = NIL 2 = STRUCTURE
Operating Mode	1 = REQUEST 2 = SAMPLE 3 = EVENT 4 = APPLICATION_DEFINED
Operating System	1 = RISC_6000 2 = IBM_6095 3 = IBM_370
Operating System Data	1 = SYSTEM_LEVEL 2 = ENVIRONMENT_DESCRIPTOR
Path Order	1 = TOPFIRST 2 = BOTTOMFIRST

Pattern/Line/Hatch Representation	1 = NOT_AVAILABLE 2 = BOTH_AVAILABLE 3 = INQUIRE_ONLY_AVAILABLE 4 = SET_ONLY_AVAILABLE
Physical Device Mode	1 = DISABLED 2 = ENABLED
Physical Device Number/Category	1 = BUTTON 2 = SCALAR 3 = 2D_VECTOR
Pick Correlation State	1 = OFF 2 = ON
Pick Measure	1 = NORMAL 2 = EXTENDED
Pick Path Order	1 = TOP_FIRST 2 = BOTTOM_FIRST
Pick Selection Criteria	1 = FIRST 2 = LAST 3 = ALL 4 = FIRST_VISIBLE 5 = LAST_VISIBLE 6 = ALL_VISIBLE
Pixel Order	1 = LEFT_TO_RIGHT_BOTTOM_TO_TOP 2 = LEFT_TO_RIGHT_TOP_TO_BOTTOM
Pixel Operations	1 = TWO_OPERAND 2 = THREE_OPERAND
Pixel Packing Factor	1 = 8_BITS_PIXEL 2 = 16_BITS_PIXEL 3 = 32_BITS_PIXEL
Point Type	1 = POINT_2D 2 = POINT_3D
Polygon Culling Mode	1 = NONE 2 = BACK 3 = FRONT
Polyhedron Edge Culling Mode	1 = NONE 2 = BOTH_BACK 3 = BOTH_FRONT 4 = BOTH_BACK_OR_BOTH_FRONT 5 = BACK_AND_FRONT 6 = LEAST_ONE_BACK 7 = LEAST_ONE_FRONT
Polyline End Type	1 = FLAT 2 = ROUND 3 = SQUARE
Polyline Representation Group Identifier	1 = LINETYPE 2 = LINEWIDTH_SCALE_FACTOR 3 = POLYLINE_COLOR
Polyline Shading Method	1 = POLYLINE_SHADING_NONE 2 = POLYLINE_SHADING_COLOR
Polymarker Representation Group Identifier	1 = MARKER_TYPE 2 = MARKER_SIZE_SCALE_FACTOR 3 = POLYMARKER_COLOR
Projection Type	1 = PARALLEL 2 = PERSPECTIVE
Quantization Method	1 = WORKSTATION_DEPENDENT 2 = BITWISE
Reference View	1 = HIGHER 2 = LOWER

Reflectance Model	1 = REFLECTANCE_NONE 2 = AMB 3 = AMB_DIFF 4 = AMB_DIFF_SPEC
Regeneration Flag	1 = POSTPONE 2 = PERFORM
Rendering Color Model	1 = RGB_NORMAL 2 = RGB_B_ONLY
Request Choice/Pick/String Input/Valuator Status	1 = NONE 2 = OK
Reset Switch	1 = OFF 2 = ON
Resource Type	1 = WORKSTATION 2 = STRUCTURE_STORE 3 = IMAGE_BOARD 4 = FONT_DIRECTORY 5 = ARCHIVE_FILE
Selected Structure Store Status	1 = NON_EXISTENT 2 = EXISTENT
Set Modeling Transformation Method	1 = PRECONCATENATE 2 = POSTCONCATENATE 3 = REPLACE
Shell Deferral Mode	1 = FLUSH 2 = DEFERRED 3 = DEFERRED_PLUS_MSGS
Shielding Available	1 = NOT_AVAILABLE 2 = AVAILABLE
Shielding Indicator	1 = OFF 2 = ON
Simultaneous Event Flag	0 = NO_MORE_SIMULTANEOUS_EVENT 1 = MORE_SIMULTANEOUS_EVENT
Source Blending Function	1 = SRCBF_ZERO, 2 = SRCBF_ONE, 3 = SRCBF_SRC_ALPHA, 4 = SRCBF_ONE_MINUS_SRC_ALPHA, 5 = SRCBF_DST_ALPHA, 6 = SRCBF_ONE_MINUS_DST_ALPHA, 7 = SRCBF_DST_COLOR, 8 = SRCBF_ONE_MINUS_DST_COLOR, 9 = SRCBF_MIN_SRC_ALPHA_ONE_MINUS_DST_ALPHA
State Switch	1 = DEVICE_INACTIVE 2 = DEVICE_ACTIVE
Stroke Device	1 = 2D 2 = 3D
Structure Existence	1 = NON_EXISTENT 2 = EXISTENT
Structure Network Source	1 = SELECTED_STRUCTURE_STORE 2 = SPECIFIED_STRUCTURE_STORE 2 = SPECIFIED_ARCHIVE_FILE
Structure State Value	1 = STCL 2 = STOP 3 = SSCL 4 = SSOP 5 = NROP
Structure Store Type	1 = NORMAL
Surface Approximation Criteria	1 = WORKSTATION_DEPENDENT 3 = CONSTANT_SUBDIVISION_BETWEEN_KNOTS 8 = VARIABLE_SUBDIVISION_BETWEEN_KNOTS

Synchronization Mode	1 = NOWAIT 2 = SYNC_WAIT
System State Value	1 = CLOSED 2 = OPEN 3 = SELECTED
Temporary View Indicator	1 = OFF 2 = ON
Text Encoding Method	1 = UNICODE
Text Precision	1 = STRING_PREC 2 = CHAR_PREC 3 = STROKE_PREC
Text Path	1 = RIGHT 2 = LEFT 3 = UP 4 = DOWN
Text Representation Group Identifier	1 = TEXT_FONT 2 = TEXT_PRECISION 3 = CHARACTER_EXPANSION_FACTOR 4 = CHARACTER_SPACING 5 = TEXT_COLOR
Three Operand Pixel Operation	1 = LOGICAL 2 = ARITHMETIC
Transfer and/or Execute Flag	1 = EXECUTE_ONLY 2 = TRANSFER_EXECUTE
Transparency Processing Mode	1 = OFF 2 = PARTIAL_TRANSPARENT 3 = BLEND 4 = BLEND_ALL
Trigger Switch	1 = OFF 2 = ON
Two Operand Pixel Operation	1 = REFLECTION
Update Notification Mode	1 = NO 2 = YES
Vertical Alignment	1 = NORMAL 2 = TOP 3 = CAP 4 = HALF 5 = BASE 6 = BOTTOM
View Active Flag	1 = INACTIVE 2 = ACTIVE
View Priority	1 = HIGHER 2 = LOWER
View Projection Type	1 = PARALLEL 2 = PERSPECTIVE
Window Mapping Method	1 = MAPPED 2 = DIRECT
Workstation Category	1 = OUTPUT 2 = INPUT 3 = OUTIN
Workstation Transformation Update State	1 = NOT_PENDING 2 = PENDING
Workstation State Value	1 = CLOSED 2 = OPEN 3 = SELECTED

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## Chapter 5. Miscellaneous Information

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### Interior Style Hatch Table Entries

1	Vertical lines
2	Horizontal lines
3	Diagonal lines, lower left to upper right, wide spacing
4	Diagonal lines, lower left to upper right, medium spacing
5	Diagonal lines, lower right to upper left, wide spacing
6	Diagonal lines, lower right to upper left, medium spacing
7	Raster pattern 1
8	Raster pattern 2
9	Raster pattern 3
10	Raster pattern 4
11	Raster pattern 5
12	Raster pattern 6
13	Raster pattern 7
14	Raster pattern 8
15	Horizontal/Vertical cross-hatch, spacing 1
16	Diagonal cross-hatch, spacing 1
17	Horizontal/Vertical cross-hatch, spacing 2
18	Diagonal cross-hatch, spacing 2
19	Horizontal/Vertical cross-hatch, spacing 3
20	Diagonal cross-hatch, spacing 3
21	Horizontal/Vertical cross-hatch, spacing 4
22	Diagonal cross-hatch, spacing 4
23	Brick pattern - horizontal
24	Brick pattern - diagonal

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### Codes for Inquire Element Header

#### Output Primitives

Decimal	Hex Value	Subroutine
<b>Line Primitives</b>		
257	X'0101'	Polyline 3 (GPPL3)
258	X'0102'	Polyline 2 (GPPL2)
318	X'013E'	Polyline Set 3 With Data (GPPLD3)
259	X'0103'	Disjoint Polyline 3 (GPDPL3)
260	X'0104'	Disjoint Polyline 2 (GPDPL2)
273	X'0111'	Circle 2 (GPCR2)
274	X'0112'	Circular Arc 2 (GPCRA2)

<b>Decimal</b>	<b>Hex Value</b>	<b>Subroutine</b>
280	X'0118'	Ellipse 3 (GPEL3)
281	X'0119'	Ellipse 2 (GPEL2)
282	X'011A'	Elliptical Arc 3 (GPELA3)
283	X'011B'	Elliptical Arc 2 (GPELA2)
295	X'0127'	Line Grid 3 (GPLG3)
296	X'0128'	Line Grid 2 (GPLG2)
278	X'0116'	Non-uniform B-Spline Curve 3 (GPNBC3)
279	X'0117'	Non-uniform B-Spline Curve 2 (GPNBC2)
309	X'0135'	Polyhedron Edge (GPPHE)
320	X'0140'	Quadrilateral Mesh 3 (GPQM3)
<b>Marker Primitives</b>		
261	X'0105'	Polymarker 3 (GPPM3)
262	X'0106'	Polymarker 2 (GPPM2)
293	X'4300'	Marker Grid 3 (GPMG3)
294	X'4300'	Marker Grid 2 (GPMG2)
<b>Annotation Text Primitives</b>		
265	X'0109'	Annotation Text 3 (GPAN3)
266	X'010A'	Annotation Text 2 (GPAN2)
229	X'010D'	Annotation Text Relative 3 (GPANR3)
270	X'010E'	Annotation Text Relative 2 (GPANR2)
<b>Geometric Text Primitives</b>		
263	X'0107'	Geometric Text 3 (GPTX3)
264	X'0108'	Geometric Text 2 (GPTX2)
304	X'0130'	Character Line 2 (GPCHL2)
<b>Area Primitives</b>		
289	X'0121'	Polygon 3 (GPPG3)
290	X'0122'	Polygon 2 (GPPG2)
299	X'012B'	Polygon 3 With Data (GPPGD3)
300	X'012C'	Polygon 2 With Data (GPPGD2)
301	X'012D'	Triangle Strip 3 (GPTS3)
305	X'0131'	Non-uniform B-Spline Surface (GPNBS)
308	X'0134'	Composite Fill Area 2 (GPCFA2)
306	X'0132'	Trimmed Non-uniform B-Spline Surface (GPTNBS)
312	X'0138'	Polysphere (GPSPH)
<b>Pixel Primitives</b>		
271	X'010F'	Pixel 3 (GPPXL3)
272	X'0110'	Pixel 2 (GPPXL2)

## Attribute Setting Structure Elements

<b>Decimal</b>	<b>Hex Value</b>	<b>Subroutine</b>
<b>General Attributes</b>		
74	X'004A'	Set HLHSR Identifier (GPHID)
82	X'0052'	Set Antialiasing Identifier (GPAID)
85	X'0055'	Set Z-buffer Protect Mask (GPZBM)
84	X'0054'	Set Face Lighting Method (GPF LM)
6	X'0006'	Set Depth Cue Index (GPDCI)
7	X'0007'	Set Color Processing Index (GPCPI)
224	X'00E0'	Set Highlighting Color Index (GPHLCI)
225	X'00E1'	Set Highlighting Color Direct (GPHLCD)
226	X'00E2'	Add Class Name to Set (GPADCN)
227	X'00E3'	Remove Class Name from Set (GPRCN)
<b>Attribute Selection</b>		
53	X'0035'	Set Attribute Source Flag (GPASF)



Decimal	Hex Value	Subroutine
<b>Polyline Attributes</b>		
76	X'004C'	Set Curve Approximation Criteria (GPCAC)
80	X'0050'	Set Trimming Curve Approximation Criteria (GPTCAC)
78	X'004E'	Set Polyhedron Edge Culling (GPPHEC)
1	X'0001'	Set Polyline Index (GPPLI)
8	X'0008'	Set Linetype (GPLT)
31	X'001F'	Set Polyline End Type (GPPLET)
9	X'0009'	Set Linewidth Scale Factor (GPLWSC)
10	X'000A'	Set Polyline Color Index (GPPLCI)
40	X'0028'	Set Polyline Color Direct (GPPLCD)
98	X'0062'	Set Polyline Shading Method (GPPLSM)
<b>Polymarker Attributes</b>		
2	X'0002'	Set Polymarker Index (GPPMI)
11	X'000B'	Set Marker Type (GPMT)
12	X'000C'	Set Marker Size Scale Factor (GPMSSC)
13	X'000D'	Set Polymarker Color Index (GPPMCI)
41	X'0029'	Set Polymarker Color Direct (GPPMCD)
<b>Text Attributes</b>		
19	X'0013'	Set Character Height (GPCHH)
39	X'0027'	Set Character Line Scale Factor (GPCHLS)
20	X'0014'	Set Character Up Vector (GPCHUP)
38	X'0026'	Set Character Up and Base Vectors (GPCHUB)
21	X'0015'	Set Text Path (GPTXPT)
23	X'0017'	Set Text Alignment (GPTXAL)
22	X'0016'	Set Character Positioning Mode (GPCHPM)
3	X'0003'	Set Text Index (GPTXI)
14	X'000E'	Set Text Font (GPTXFO)
15	X'000F'	Set Text Precision (GPTXPR)
16	X'0010'	Set Character Expansion Factor (GPCHXP)
17	X'0011'	Set Character Spacing (GPCHSP)
18	X'0012'	Set Text Color Index (GPTXCI)
42	X'002A'	Set Text Color Direct (GPTXCD)
<b>Annotation Text Attributes</b>		
33	X'0021'	Set Annotation Height Scale Factor (GPAHSC)
34	X'0022'	Set Annotation Height (GPAH)
32	X'0020'	Set Annotation Style (GPAS)
35	X'0023'	Set Annotation Up Vector (GPAUP)
36	X'0024'	Set Annotation Path (GPAPT)
37	X'0025'	Set Annotation Alignment (GPAAL)
<b>Polygon Attributes</b>		
77	X'004D'	Set Surface Approximation Criteria (GPSAC)
69	X'0045'	Set Polygon Culling (GPPGC)
<b>Interior Attributes</b>		
72	X'0048'	Set Face Distinguish Mode (GPFDMO)
73	X'0049'	Set Light Source State (GPLSS)
79	X'004F'	Set Lighting Calculation Mode (GPLMO)
84	X'0054'	Set Face Lighting Method (GPFML)
5	X'0005'	Set Interior Index (GPII)
24	X'0018'	Set Interior Style (GPIS)
25	X'0019'	Set Interior Style Index (GPISI)
26	X'001A'	Set Interior Color Index (GPICI)
43	X'002B'	Set Interior Color Direct (GPICD)
63	X'003F'	Set Back Interior Color Index (GPBICI)
64	X'0040'	Set Back Interior Color Direct (GPBICD)

Decimal	Hex Value	Subroutine
65	X'0041'	Set Specular Color Index (GPSCI)
66	X'0042'	Set Specular Color Direct (GPSCD)
67	X'0048'	Set Back Specular Color Index (GPBSCI)
68	X'0044'	Set Back Specular Color Direct (GPBSCD)
70	X'0046'	Set Surface Properties (GPSPR)
71	X'0047'	Set Back Surface Properties (GPBSPR)
81	X'0051'	Set Parametric Surface Characteristics (GPPSC)
<b>Edge Attributes</b>		
4	X'0004'	Set Edge Index (GPEI)
27	X'001B'	Set Edge Flag (GPEF)
28	X'001C'	Set Edge Linetype (GPELT)
30	X'001E'	Set Edge Scale Factor (GPESC)
29	X'001D'	Set Edge Color Index (GPECI)
44	X'002C'	Set Edge Color Direct (GPECD)

### Transformation Setting Structure Elements

Decimal	Hex Value	Subroutine
<b>Modeling Transformation</b>		
210	X'00D2'	Set Global Transformation 3 (GPGLX3)
211	X'00D3'	Set Global Transformation 2 (GPGLX2)
208	X'00D0'	Set Modeling Transformation 3 (GPMLX3)
209	X'00D1'	Set Modeling Transformation 2 (GPMLX2)

### Miscellaneous Structure Elements

Decimal	Hex Value	Subroutine
<b>View Selection</b>		
216	X'00D8'	Set View Index (GPVWI)
<b>Traversal Control</b>		
250	X'00FA'	Execute Structure (GPEXST)
242	X'00F1'	Test Extent 3 (GPTEX3)
241	X'00F2'	Test Extent 2 (GPTEX2)
243	X'00F3'	Set Condition (GPCOND)
254	X'00FE'	Conditional Execute Structure (GPCEXS)
240	X'00F0'	Conditional Return (GPCRET)
<b>Identification</b>		
251	X'00FB'	Insert Label (GPINLB)
252	X'00FC'	Set Pick Identifier (GPPKID)
<b>Frame Buffer Control</b>		
49	X'0031'	Set Frame Buffer Protect Mask (GPFBM)
50	X'0032'	Set Frame Buffer Comparison (GPFBC)
<b>Application-Defined Data</b>		
228	X'00E4'	Insert Application Data (GPINAD)
229	X'00E5'	Null Data (GPNULL)
246	X'00F6'	Workstation-Dependent Output

---

## Choice Values for Choice Device 4

65537	X'10001'	Enter
65538	X'10002'	New Line
65539	X'10003'	Alt-Cancel

65540	X'10004'	Up arrow
65541	X'10005'	Down arrow
65542	X'10006'	Left arrow
65543	X'10007'	Right arrow
65544	X'10008'	Tab Forward
65545	X'10009'	Tab back
65546	X'1000A'	Insert
65547	X'1000B'	Delete
65548	X'1000C'	Backspace
65549	X'1000D'	Up arrow + Shift
65550	X'1000E'	Down arrow + Shift
65551	X'1000F'	Left arrow + Shift
65552	X'10010'	Right arrow + Shift
65553	X'10011'	Up arrow + Alt
65554	X'10012'	Down arrow + Alt
65555	X'10013'	Left arrow + Alt
65556	X'10014'	Right arrow + Alt
65557	X'10015'	Home
65558	X'10016'	Home + Shift
65559	X'10017'	Home + Alt
65560	X'10018'	PA1
65561	X'10019'	EOF
65563	X'1001A'	EOF + Shift
65563	X'1001B'	EOF + Alt
65564	X'1001C'	PA2
65565	X'1001D'	CLEAR
65566	X'1001E'	+ on numeric pad + Alt
65567	X'1001F'	- on numeric pad + Alt

---

## List of ASF Identifiers

- 1 Linetype
- 2 Linewidth scale factor
- 3 Polyline color
- 4 Marker type
- 5 Marker size scale factor
- 6 Polymarker color
- 7 Text font
- 8 Text precision
- 9 Character expansion factor
- 10 Character spacing
- 11 Text color
- 12 Interior style
- 13 Style
- 14 Interior color
- 15 Edge flag
- 16 Edge linetype
- 17 Edge color
- 18 Edge scale factor

---

## GDP Identifiers

1001 Pixel 3

1002	Pixel 2
1003	Disjoint Polyline 3
1004	Disjoint Polyline 2
1005	Circle 2
1006	Circular Arc 2
1007	Ellipse 2
1008	Ellipse 3
1009	Elliptical Arc 2
1010	Elliptical Arc 3
1014	Polyline Set 3 With Data
1016	Polygon 3 With Data
1017	Polygon 2 With Data
1020	Marker Grid 3
1021	Marker Grid 2
1022	Line Grid 3
1023	Line Grid 2
1027	Composite Fill Area 2
1029	Triangle Strip 3
1031	Quadrilateral Mesh 3
1033	Non-Uniform B-Spline Curve 3
1034	Non-Uniform B-Spline Curve 2
1035	Non-Uniform B-Surface
1036	Trimmed Non-Uniform B-Spline Surface
1037	Polyhedron Edge
1039	Character Line 2
1046	Polysphere

---

## Escape Functions

1001	Sound Alarm
1002	Enable/Disable Link Switch
1003	GDF Plot Size
1004	Initialize Pick Correlation State
1005	Set Pick Selection Criteria
1006	Set Input Echo Color
1007	Read Frame Buffer
1008	Geometric Text Culling
1009	Window Resize Notification Control
1010	Inquire Mapped Display Surface Size
1011	Window Exposure Notification Control
1012	Window Deletion Notification Control
1014	Workstation-Dependent Output
1015	Convert Coordinate Values

---

## GSE Identifiers

1001	Set Frame Buffer Protect Mask
1002	Set Frame Buffer Comparison
1003	Set Condition
1004	Conditional Execute Structure
1005	Conditional Return
1006	Test Extent 3
1007	Test Extent 2

1008	Parametric Surface Characteristics
1009	Z-buffer Protect Mask
1010	Workstation-Dependent Output

---

## Character Code and Font Designations

### EBCDIC and ASCII

<b>CSID 1</b>	— U.S. ENGLISH Font 1 (graPHIGS Default) Font 2 (Complex Roman) Font 3 (Complex Italian) Font 4 (Complex Script) Font 5 (Duplex Roman) Font 6 (Gothic English) Font 7 (Gothic German) Font 8 (Gothic Italian) Font 9 (Simplex Roman) Font 10 (Triplex Italic) Font 11 (Triplex Roman)
<b>CSID 2</b>	— U.K. ENGLISH Font 1 (graPHIGS Default)
<b>CSID 3</b>	— GERMAN Font 1 (graPHIGS Default)
<b>CSID 4</b>	— FRENCH Font 1 (graPHIGS Default)
<b>CSID 5</b>	— ITALIAN Font 1 (graPHIGS Default)
<b>CSID 6</b>	— JAPANESE KATAKANA Font 1 (graPHIGS Default)
<b>CSID 7</b>	— SWEDISH Font 1 (graPHIGS Default)
<b>CSID 8</b>	— MULTI-LANGUAGE Font 1 (graPHIGS Default)
<b>CSID 9</b>	— SINGLE-BYTE KOREAN Font 1 (graPHIGS Default)
<b>CSID 10</b>	— ISO 8859-1 (LATIN 1) Font 1 (graPHIGS Default)
<b>CSID 128</b>	— JAPANESE KANJI Font 1 (graPHIGS Default)
<b>CSID 129</b>	— HANGUL Font 1 (graPHIGS Default)
<b>CSID 130</b>	— TRADITIONAL CHINESE Font 1 (graPHIGS Default)
<b>CSID 111-127</b>	— RESERVED
<b>CSID 131-255</b>	— RESERVED

---

### Prompt/Echo Type Definitions

<b>Choice Device</b>	1 =	workstation dependent
	2 =	individual indicators

<b>Locator Device</b>	1 =	workstation dependent
	2 =	cross hair
	3 =	tracking cross
	4 =	rubber band line
	5 =	rubber band rectangle
	7 =	structure drag
	<b>Pick Device</b>	1 =
<b>Stroke Device</b>	1 =	workstation dependent
	3 =	markers
	4 =	lines
<b>String Device</b>	1 =	workstation dependent
	2 =	application-specified prompt string
<b>Valuator Device</b>	1 =	workstation dependent
	3 =	digital representation
	4 =	implementation dependent mapping of multiple turns

---

## Trace Control Word Format

<b>Byte 0-1 =</b>	FLAGS	
	<b>Bit 0 =</b>	trace word "unchangeable"
	<b>Bit 1-15 =</b>	reserved
<b>Byte 2 =</b>	TRACE QUALIFIER	
	'00'X =	controlled by other flags
	'03'X =	abend at termination
	'20'X =	storage use report
<b>Byte 3 =</b>	TRACE LEVEL	
	'00'X =	stop component, subcomponent, module trace
	'01'X =	start component entry and exit
	'02'X =	start component trace, subcomponent entry and exit
	'03'X =	start component trace, subcomponent trace, module entry and exit

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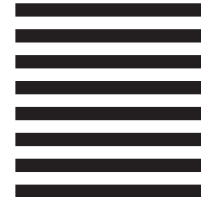
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