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Standard PDF Encryption (restricted printing, modifying,
copying text and images)
Support for Optimized PDF
Support for custom page sizes
Option to attach PDFs to email after creation
Automatic text summarization of PDF
documents
Easy integration with document management
and Workflow systems
n-Up printing
Automatic page numbering
Simple Programmers Interface
Option to automatically display PDFs after
creation
Custom resizing of PDF output
Configurable Font embedding
Support for Citrix/Terminal Server
Support for Windows 2003 Server
Easy PS to PDF processing
Specify PDF document properties
Control PDF opening mode
Can be configured to add functionality to
Acrobat Distiller
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This document illustrates several features of the Pdf995 Suite of Products.

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Introduction
TheVirtualRealityModelingLanguage(VRML)is alanguagefordescribingmulti-
participant interactivesimulations --virtual worlds networked viatheglobal Internet and
hyperlinked with theWorld WideWeb. All aspects ofvirtual world display, interaction
and internetworkingcan bespecified usingVRML. It is theintention ofits designers that
VRMLbecomethestandard languageforinteractivesimulation within theWorld Wide
Web.
Thefirst version ofVRMLallows forthecreation ofvirtual worlds with limited
interactivebehavior. Theseworlds can contain objects which havehyperlinks to other
worlds, HTMLdocuments orothervalid MIME types. When theuserselects an object
with ahyperlink, theappropriateMIME vieweris launched. When theuserselects alink
to aVRMLdocument from within acorrectlyconfigured WWW browser, aVRML
vieweris launched. Thus VRMLviewers aretheperfect companion applications to
standard WWW browsers fornavigatingand visualizingtheWeb. Futureversions of
VRMLwill allow forricherbehaviors, includinganimations, motion physics and real-
timemulti-userinteraction.
This document specifies thefeatures and syntax ofVersion 1.0 ofVRML.
VRMLMissionStatement
Thehistoryofthedevelopment oftheInternet has had threedistinct phases; first, the
development oftheTCP/IP infrastructurewhich allowed documents and datato bestored
in aproximallyindependent way; that is, Internet provided alayerofabstraction between
datasets and thehosts which manipulated them. Whilethis abstraction was useful, it was
also confusing; without anyclearsenseof"what went where", access to Internet was
restricted to theclass ofsysops/net surfers who could maintain internal cognitivemaps of
thedataspace.
Next, Tim Berners-Lee’s work at CERN, wherehedeveloped thehypermediasystem
known asWorldWideWeb, added anotherlayerofabstraction to theexistingstructure.
This abstraction provided an "addressing"scheme, auniqueidentifier(theUniversal
ResourceLocator), which could tell anyone"whereto go and how to get there"forany
pieceofdatawithin theWeb. Whileuseful, it lacked dimensionality; there’s no there
therewithin theweb, and theonlytypeofnavigation permissible(otherthan surfing)is
bydirect reference. In otherwords, Ican onlytell you how to get to theVRMLForum
homepagebysaying, "http://www.wired.com/", which is not human-centered data. In

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fact,Ineedtomakeanefforttorememberitatall.So,whiletheWorldWideWeb
providesaretrievalmechanismtocomplementtheexistingstoragemechanism,itleaves
alottobedesired,particularlyforhumanbeings.
Finally,wemoveto"perceptualized"Internetworks,wherethedatahasbeensensualized,
thatis,renderedsensually.Ifsomethingisrepresentedsensually,itispossibletomake
senseofit.VRMLisanattempt(howsuccessful,onlytimeandeffortwilltell)toplace
humansatthecenteroftheInternet,orderingitsuniversetoourwhims.Inordertodo
that,themostimportantsingleelementisastandardthatdefinestheparticularitiesof
perception.VirtualRealityModelingLanguageisthatstandard,designedtobea
universal description language for multi-participant simulations.
Thesethreephases,storage,retrieval,andperceptualizationareanalogoustothehuman
processofconsciousness,asexpressedintermsofsemanticsandcognitivescience.
Eventsoccurandarerecorded(memory);inferencesaredrawnfrommemory
(associations),andfromsetsofrelatedevents,mapsoftheuniversearecreated(cognitive
perception).Whatisimportanttorememberisthatthemapis nottheterritory,andwe
shouldavoidbecomingtrappedinanysinglerepresentationorworld-view.Althoughwe
needto design to avoid disorientation,weshouldalwayspushtheenvelopeinthekinds
ofexperiencewecanbringintomanifestation!
Thisdocumentisthelivingproofofthesuccessofaprocessthatwascommittedtobeing
openandflexible,responsivetotheneedsofagrowingWebcommunity.Ratherthanre-
inventthewheel,wehaveadaptedanexistingspecification(OpenInventor)asthebasis
fromwhichourownworkcangrow,savingyearsofdesignworkandperhapsmany
mistakes.Nowourrealworkcanbegin;thatofrenderingournoosphericspace.
History
VRMLwasconceivedinthespringof1994atthefirstannualWorldWideWeb
ConferenceinGeneva,Switzerland.TimBerners-LeeandDaveRaggettorganizeda
Birds-of-a-Feather(BOF)sessiontodiscussVirtualRealityinterfacestotheWorldWide
Web.SeveralBOFattendeesdescribedprojectsalreadyunderwaytobuildthree
dimensionalgraphicalvisualizationtoolswhichinteroperatewiththeWeb.Attendees
agreedontheneedforthesetoolstohaveacommonlanguageforspecifying3Dscene
descriptionandWWW hyperlinks--ananalogofHTMLforvirtualreality.Theterm
VirtualRealityMarkupLanguage(VRML)wascoined,andthegroupresolvedtobegin
specificationworkaftertheconference.Theword’Markup’waslaterchangedto
’Modeling’toreflectthegraphicalnatureofVRML.

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ShortlyaftertheGenevaBOFsession,thewww-vrmlmailinglistwascreatedtodiscuss
thedevelopmentofaspecificationforthefirstversionofVRML.Theresponsetothelist
invitationwasoverwhelming:withinaweek,therewereoverathousandmembers.After
aninitialsettling-inperiod,listmoderatorMarkPesceofLabyrinthGroupannouncedhis
intentiontohaveadraftversionofthespecificationreadybytheWWWFall1994
conference,amerefivemonthsaway.Therewasgeneralagreementonthelistthat,while
thisschedulewasaggressive,itwasachievableprovidedthattherequirementsforthe
firstversionwerenottooambitiousandthatVRMLcouldbeadaptedfromanexisting
solution.Thelistquicklyagreeduponasetofrequirementsforthefirstversion,and
beganasearchfortechnologieswhichcouldbeadaptedtofittheneedsofVRML.
Thesearchforexistingtechnologiesturnedupaseveralworthwhilecandidates.After
muchdeliberationthelistcametoaconsensus:theOpenInventorASCIIFileFormat
fromSiliconGraphics,Inc.TheInventorFileFormatsupportscompletedescriptionsof
3Dsceneswithpolygonallyrenderedobjects,lighting,materials,ambientpropertiesand
realismeffects.AsubsetoftheInventorFileFormat,withextensionstosupport
networking,formsthebasisofVRML.GavinBellofSiliconGraphicshasadaptedthe
InventorFileFormatforVRML,withdesigninputfromthemailinglist.SGIhaspublicly
statedthatthefileformatisavailableforuseintheopenmarket,andhavecontributeda
fileformatparserintothepublicdomaintobootstrapVRMLviewerdevelopment.

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A Graphical Representation of Inverse VRML Uptake
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1 The number 1 represents an engineer with an "average" cube \*
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61.4 114.43 10
49.8 92.846 20
41.9 78.102 30 180
36.2 67.402 40 120
31.8 59.275 50 80.0 147.0 192.0
28.4 52.9 60 57.0 92.0 123.0
25.6 47.774 70 40.0 65.0 79.0
23.4 43.543 80 30.0 49.0 59.0
21.5 40.001 90 24.0 37.0 45.0
19.9 37 100 19.0 30.0 35.0
18.5 34.409 110 16.0 25.0 29.0
17.3 32.154 120 13.0 20.0 n/a
16.2 30.178 130 10.0 17.0 n/a
15.1 28.202 140 8.0 n/a n/a
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Politicians
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