

toc

Contents

17	Rendering	1
	Rendering	1
	Render Scene Dialog	2
	Rendered Frame Window	5
	Render Output File Dialog	8
	Rendering Commands	11
	Rendering Commands	11
	Render Scene	11
	Render Type	13
	Render Bounding Box/Selected Dialog	16
	Quick Render Flyout	16
	Quick Render (Production)	16
	Quick Render (ActiveShade)	17
	ActiveShade	17
	ActiveShade Floater	20
	ActiveShade Viewport.....	20
	ActiveShade Commands (Quad Menu).....	21
	Preset Rendering Options	23
	Show Last Rendering.....	24
	Render Last	24
	Print Size Wizard.....	24
	Common Rendering Parameters	27
	Common Panel (Render Scene Dialog)	27
	Common Parameters Rollout (Render Scene Dialog)	27
	Configure Preset Dialog	32
	Email Notifications Rollout.....	33
	Scripts Rollout (Render Scene Dialog)	33
	Assign Renderer Rollout	34
	Choose Renderer Dialog	35
	Renderers	35
	Renderer Panel (Render Scene Dialog).....	35
	Default Scanline Renderer	37
	Default Scanline Renderer Rollout.....	37
	Advanced Lighting with the Scanline Renderer ... 43	
	Advanced Lighting Panel	43
	Light Tracer	43
	Light Tracer	43
	Radiosity	50
	Modeling Global Illumination with Radiosity.....	50
	How Radiosity Works in 3ds Max.....	55
	Radiosity Workflows	56
	Animation with Radiosity.....	59
	Radiosity Controls.....	60
	Radiosity Rollouts	63
	Radiosity Processing Parameters Rollout	63
	Radiosity Meshing Parameters Rollout.....	66
	Light Painting Rollout (Radiosity).....	69
	Rendering Parameters Rollout (Radiosity).....	70
	Statistics Rollout (Radiosity)	74
	Lighting Analysis	75
	Lighting Analysis	75
	Lighting Analysis Dialog.....	75
	Multi-Pass Rendering Effects	76
	Using Multi-Pass Rendering Effects.....	76
	mental ray 3.4 Renderer	77
	mental ray Renderer	77
	Rendering with the mental ray Renderer	78
	Getting Good Results with mental ray Rendering....	80
	3ds Max Materials in mental ray Renderings.....	82
	Enhancements to Standard Features.....	84
	Processing Panel (mental ray Renderer)	85
	mental ray Messages Window	86
	mental ray Concepts	87
	mental ray Concepts.....	87
	Ray-Traced Reflections and Refractions with the mental ray Renderer	87
	Shadows with the mental ray Renderer.....	88

Motion Blur with the mental ray Renderer	88
Depth of Field with the mental ray Renderer.....	89
Caustic Lighting Effects.....	91
Global Illumination with the mental ray Renderer...	92
mental ray Volume Shading	93
mental ray Displacement.....	95
mental ray Contour Shading	95
mental ray Renderer Rollouts.....	97
Sampling Quality Rollout (mental ray Renderer).....	97
Camera Effects Rollout (mental ray Renderer).....	100
Caustics and Global Illumination Rollout (mental ray Renderer)	104
Final Gather Rollout (mental ray Renderer).....	109
Shadows and Displacement Rollout (mental ray Renderer)	111
Rendering Algorithms Rollout (mental ray Renderer)	113
Translator Options Rollout (mental ray Renderer)	115
Diagnostics Rollout (mental ray Renderer)	120
Distributed Bucket Rendering Rollout (mental ray Renderer)	121
Add/Edit DBR Host Dialog.....	124
Ray-Trace Acceleration Parameters	125
Ray-Trace Acceleration: Parameters for the BSP Methods.....	125
Ray-Trace Acceleration: Parameters for the Grid Method.....	125
VUE File Renderer	126
VUE File Renderer	126
Rendering Elements Separately.....	126
Render Elements Panel and Rollout.....	126
Render Elements Dialog.....	133
Render Element Output File Dialog.....	133
Blend Element Parameters Rollout	136
Hair and Fur Render Element	136
Lighting Texture Element Rollout.....	136
Matte Texture Element Rollout	137
Velocity Element Parameters Rollout.....	137
Z Element Parameters Rollout	139
Diffuse Texture Element Rollout.....	139
Rendering to Textures.....	139
Render to Texture	139
Baked Texture Elements	142
Target Map Slot Assignments.....	145
Creating and Using Normal Bump Maps	146
Troubleshooting Normal Bump Maps.....	147
Render to Textures Dialog	151
Render to Texture Dialog	151
Render to Texture: General Settings Rollout	152
Render to Texture: Objects to Bake Rollout.....	153
Render to Texture: Output Rollout	155
Render to Texture: Baked Material Rollout	157
Render to Texture: Automatic Mapping Rollout	158
Render to Texture: Add Texture Elements Dialog..	160
Render to Texture: Projection Options Dialog.....	160
Preview Renderings	163
Preview Renderings.....	163
Make Preview	163
Make Preview Dialog.....	164
View Preview	165
Rename Preview.....	165
Panorama Exporter	166
Panorama Exporter Utility.....	166
Panorama Exporter Render Setup Dialog	166
Panorama Exporter Viewer.....	168
Network Rendering	169
Introduction to Network Rendering	169
Basic Procedures for Network Rendering.....	170
How Network Rendering Works.....	173
Starting Network Rendering	175
Troubleshooting Guide	177
System Setup	180
Setting Up for Network Rendering	180
Software Setup	180
Setting Up Rendering Software.....	180
Setting Up Directories.....	181
Sharing a Directory	182
Mounting a Directory	182
Using Configure User Paths	183
Network Job Assignment.....	184
Network Job Assignment Dialog.....	184
Job Dependencies Dialog.....	190
Notifications Dialog	190
Strips Setup Dialog.....	191
Advanced Settings Dialog	193
Queue Monitor.....	195
Job Settings Dialog	195
Batch Rendering	198
Batch Rendering with Backburner.....	198
Quick Start Batch Rendering	198
Using Backburner for Batch Rendering.....	199
Batch Rendering - Batch Render Dialog	200
Batch Render Tool - Batch Render Warning Dialog.....	205
Command-Line Rendering.....	206
Command-Line Rendering.....	206
Command-Line Rendering Switches.....	208

Backburner Command Line Control.....	212	BoxGizmo Helper.....	300
18 Effects and Environments 213		CylGizmo Helper.....	302
Effects and Environments	213	SphereGizmo Helper.....	303
Environment and Effects Dialog.....	213	19 Video Post-Production 307	
Rendering Effects 214		Video Post.....	307
Introduction to Rendering Effects	214	Video Post Queue.....	308
Rendering Effects Command.....	214	Useful Video Post Procedures	309
Effects Panel and Rollout.....	215	Video Post Status Bar / View Controls.....	317
Merging Effects	216	Troubleshooting Video Post.....	317
Hair and Fur Render Effect	216	Video Post Toolbar 319	
Lens Effects Rendering Effects 219		Video Post Toolbar	319
Lens Effects Rendering Effects	219	New Sequence	319
Glow Lens Effect.....	222	Open Sequence	319
Ring Lens Effect.....	226	Save Sequence	320
Ray Lens Effect	230	Edit Current Event	320
Auto Secondary Lens Effect	234	Delete Current Event	321
Manual Secondary Lens Effect.....	238	Swap Events	321
Star Lens Effect.....	242	Execute Sequence	321
Streak Lens Effect	246	Configure Presets	323
Lens Effects Dialogs..... 250		Edit Range Bar	323
Circular Falloff Graph (Lens Effects).....	250	Align Selected Left	324
Radial Density Dialog (Lens Effects).....	252	Align Selected Right	324
Radial Falloff Dialog (Lens Effects)	253	Make Selected Same Size	325
Radial Size Dialog (Lens Effects)	255	Abut Selected	325
Blur Rendering Effect.....	256	Add Scene Event	325
Brightness and Contrast Rendering Effect	261	Add Image Input Event	328
Color Balance Rendering Effect	261	Add Image Filter Event	330
File Output Rendering Effect	262	Add Image Layer Event	331
Film Grain Rendering Effect.....	264	Add Image Output Event	334
Motion Blur Rendering Effect.....	265	Add External Event	335
Depth of Field Rendering Effect.....	265	Add Loop Event	337
Environment and Environment Effects..... 267		Editing Events..... 338	
Environment.....	267	Edit Scene Event	338
Environment Panel.....	268	Edit Image Input Event.....	341
Fire Environment Effect.....	272	Image Input Options	342
Fog Environment Effect	278	Edit Filter Event.....	344
Volume Fog Environment Effect.....	280	Edit Layer Event.....	345
Volume Light Environment Effect	284	Edit Output Image Event.....	347
Exposure Controls 289		Edit External Event.....	348
Exposure Controls.....	289	Edit Loop Event.....	349
Automatic Exposure Control	291	Editing Filter Events 350	
Linear Exposure Control.....	292	Edit Contrast Filter.....	350
Logarithmic Exposure Control	293	Edit Fade Filter	351
Pseudo Color Exposure Control	296	Edit Image Alpha Filter	351
Lighting Data Exporter Utility.....	299	Edit Negative Filter	352
Atmospheric Apparatus Helper Objects..... 300		Edit Pseudo Alpha Filter.....	352
Atmospheric Apparatus	300	Edit Simple Wipe Filter	353
Add Atmosphere Dialog	300	Edit Starfield Filter	353

Editing Layer Events.....	355
Edit Alpha Compositor	355
Edit Cross Fade Compositor	355
Edit Pseudo Alpha Compositor	356
Edit Simple Additive Compositor	356
Edit Simple Wipe Compositor	357
Adding Image Filter Events.....	357
Add Contrast Filter.....	357
Add Fade Filter	358
Add Image Alpha Filter	358
Add Lens Effects Filter.....	358
Add Negative Filter.....	359
Add Pseudo Alpha Filter	360
Add Simple Wipe Filter	360
Add Starfield Filter	361
Adding Image Layer Events.....	363
Add Alpha Compositor	363
Add Cross Fade Compositor	363
Add Pseudo Alpha Compositor	363
Add Simple Additive Compositor	364
Add Simple Wipe Compositor	364
Lens Effects Filters.....	365
Animating Lens Effects Properties.....	365
Flare Filter	366
Lens Effects Flare Filter	366
Flare Preferences.....	369
Flare Glow Parameters	371
Flare Ring Parameters	371
Automatic Secondary Flare Parameters.....	372
Manual Secondary Flare Parameters	373
Flare Ray Parameters.....	373
Flare Star Parameters.....	374
Flare Streak Parameters.....	375
Flare Inferno Parameters.....	376
Focus Filter	377
Lens Effects Focus Filter	377
Glow Filter	380
Lens Effects Glow Filter	380
Glow Properties	381
Glow Preferences	383
Glow Inferno	384
Highlight Filter.....	385
Lens Effects Highlight Filter	385
Highlight Properties.....	387
Highlight Geometry	389
Highlight Preferences	391
Lens Effects Gradients.....	392
Lens Effects Gradients.....	392
Gradient Options	394
Types of Gradients.....	395
Gradient Colors	396
20 Managing Scenes and Projects.....	397
Managing Scenes and Projects	397
File-Handling Commands	398
File-Handling Commands	398
New	399
Reset	399
Open	400
Open from Vault.....	401
Open Recent	402
Save	402
Save As	403
Save Copy As	404
Save Selected.....	404
External References (XRefs) to Objects and Scenes.....	405
Referencing Objects, Materials, and Scenes.....	405
XRef Objects.....	406
XRef Objects Dialog	408
XRef Files List Right-Click Menu.....	413
XRef Entities List Right-Click Menu.....	415
Merge XRef File Dialog	416
XRef Merge Dialog	416
XRef Scene	416
XRef Scenes Dialog.....	420
XRef Object Rollout	423
Proxy Object Rollout	423
Missing XRef Paths Dialog.....	424
Using File Link with AutoCAD and Architectural Desktop Files.....	425
File Link Basics	425
Working with Drawing Files	425
File Link Basics	426
File Link Tips.....	428
Interpreting Layer Data from AutoCAD, Architectural Desktop, or Revit	430
Scale Synchronization	431
File Link Manager	431
File Link Manager Utility	431
File Link Settings Dialog	435
Basic File Link Settings.....	436
Advanced File Link Settings.....	438
Spline Rendering File Link Settings	441
New Settings Preset Dialog	443
Rename Settings Preset Dialog	443
Preset Editing	444

Differences Between Layers and Blocks in AutoCAD and 3ds Max	444	Saving and Loading Animation	477
Select Layers Dialog.....	444	Saving and Loading Animation	477
Resolve External Reference File Dialog.....	445	Load Animation	479
Select Linked Objects Dialog	446	Save Animation	481
Working with AutoCAD, Architectural		Map Animation Dialog	483
Desktop, and Revit Files	446	Motion Mapping Parameters Rollout	484
Working with AutoCAD, Architectural		Map Track to Track Rollout.....	486
Desktop, and Revit Files	446	Retargeting Rollout	486
AutoCAD Geometry in 3ds Max.....	447	Import	490
AutoCAD Geometry in 3ds Max	447	Export.....	491
AutoCAD Entities and Blocks in 3ds Max	447	Export Selected.....	491
Resetting Transforms on Linked AutoCAD		Asset Tracking.....	492
Objects	448	Asset Tracking Dialog	492
Restrictions on Editing AutoCAD Geometry.....	449	Prompts Dialog	499
Architectural Desktop Files in 3ds Max	450	Asset Tracking Dialog Icons	499
Architectural Desktop Files.....	450	Archive.....	500
Architectural Desktop Objects in 3ds Max.....	450	Summary Info	500
Materials and Linked Architectural Desktop		File Properties.....	501
Objects.....	451	View Image File	503
Materials and Linked Architectural Desktop		Exit.....	504
Objects	451	Missing External Files Dialog.....	504
Assigning Materials to Linked Architectural		File-Handling Utilities	505
Desktop Objects	452	Asset Browser Utility.....	505
Making Changes to Architectural Desktop		Bitmap/Photometric Path Editor Utility.....	511
Materials	452	MAX File Finder Utility	511
UVW Mapping in Architectural Desktop Objects..	453	Resource Collector Utility.....	513
Drawings Exported from Revit in 3ds Max	453	Fix Ambient Utility.....	513
Drawings Exported from Revit.....	453	Bitmap Pager Statistics Dialog	515
Revit Elements in 3ds Max	454	Asset Browser Subdialogs	515
Suggested Settings and Workflow.....	457	Preferences Dialog (Asset Browser)	515
Suggested Settings for Revit Projects	457	Internet Download Dialog	516
Suggested Workflow for Revit to 3ds Max		Favorite Location Dialog.....	517
Projects	458	Bitmap Path Editor Subdialogs	517
Materials and Linked Revit Objects	459	Bitmap / Photometric Path Editor Dialog	517
Material Translation and Linked Revit Objects	459	Resource Information Dialog.....	518
Applying Materials to Linked Revit Objects	461	Scene States	519
Editing Revit Materials in 3ds Max	461	Managing Scene States	519
UVW Mapping on Revit Elements	462	Manage Scene States Dialog	521
Using Revit Materials on 3ds Max Geometry	462	Internet Access	523
Instanced Objects, Blocks, and Styles.....	463	Internet Access	523
Instanced Objects, Elements, Blocks and Styles	463	i-drop Indicator	524
Instanced Objects.....	463	Geometry File Formats.....	524
Family Elements	464	Geometry File Formats	524
Blocks	464	Importing Geometry.....	525
Styles.....	467	Working with MAX Files from Autodesk VIZ	526
Merge.....	469	Working with MAX Files from Autodesk VIZ.....	526
Merge Animation	471	VIZ Render (DRF) Files	528
Replace.....	476	VIZ Render (DRF) Files	528
		Working with DRF Files in 3ds Max.....	530

3D Studio Mesh (3DS, PRJ) Files	531	Exporting Standard Lights	580
Importing 3DS Files	531	Setting Units and Scale	581
Importing PRJ Files	532	Exporting Daylight to Lightscape	582
Exporting to 3DS	533	Selecting Objects to Be Exported	583
3D Studio Shape (SHP) Files	534	Exporting Camera Views	583
Importing SHP Files	534	Keeping Your Original 3ds Max Materials	584
Adobe Illustrator (AI) Files	534	Using Relative Paths with Block and Material Files	584
Importing Adobe Illustrator 88 Files	534	Exporting Animations	585
Exporting to Adobe Illustrator	535	How 3ds Max Objects Are Converted to Lightscape	588
ASCII (ASC, ASE) Files	535	LandXML (XML, DEM) Files	590
Exporting to ASCII	535	Importing LandXML/DEM Models	590
AutoCAD (DWG) Files	537	LandXML/DEM Model Import Dialog	590
Importing AutoCAD Drawing Files	537	Lightscape Export Dialogs	591
Legacy AutoCAD Import	543	Export Lightscape Preparation File Dialog	591
Exporting to AutoCAD DWG Files	545	Export Lightscape Preparation File Dialog	591
AutoCAD Interchange (DXF) Files	547	Lightscape Preparation File General Panel	592
Importing DXF Files	547	Lightscape Preparation File Lights Panel	594
Exporting to DXF Files	552	Lightscape Preparation File Animation Panel	596
Autodesk Inventor Files	553	Lightscape Preparation File Daylight Panel	597
Importing Autodesk Inventor Files	553	Lightscape Preparation File Windows Panel	598
DWF Files	556	Lightscape Preparation File Views Panel	599
Exporting 3D DWF Files	556	Export Lightscape View File Dialog	600
Filmbox (FBX) Files	559	Export Lightscape View File Dialog	600
Importing FBX Files	559	Lightscape View File General Panel	601
FBX Import Advanced Parameters Dialog (Animation)	560	Lightscape View File Views Panel	601
FBX Import Advanced Parameters Dialog (Bones)	561	Export Lightscape Block File Dialog	602
Exporting FBX Files	562	Export Lightscape Block File Dialog	602
Building a Character to Export to FBX	564	Lightscape Block File General Panel	602
IGES Files	565	Lightscape Block File Lights Panel	605
Overview of IGES in 3ds Max	565	Export Lightscape Material File Dialog	607
IGES Log Files	566	Export Lightscape Layer File Dialog	607
Importing IGES Files	567	Export Lightscape Parameter File Dialog	608
IGES to 3ds Max Import Table	568	Importing Lightscape Files	609
Exporting IGES Files	569	Importing Lightscape Files	609
3ds Max to IGES Export Table	570	Importing Lightscape View Files	610
JSR-184 Files	570	Importing Lightscape Preparation Files	610
Exporting JSR-184 Files	570	Importing Lightscape Solution Files	610
JSR-184 Texture Tool	572	Importing Lightscape Solution Files	610
JSR-184 Object Parameters	572	Lightscape Mesh Objects	613
JSR-184 Log Files	576	Using Illumination Maps	614
JSR-184 Standalone Player	576	Helpful Hints and Troubleshooting	617
Lightscape Files	577	Lightscape Materials Utility	618
Exporting Lightscape Files	577	Lightscape Import Dialogs	619
Exporting Lightscape Files	577	Import Lightscape Preparation Dialog	619
Creating Geometry for Lightscape	578	Import Lightscape Solution Dialog	620
Creating Materials for Lightscape	579	Error Dialog (Lightscape Import)	623
Grouping Geometry for Lightscape	580	Motion Analysis Files (HTR/HTR2, TRC)	624

Importing HTR/HTR2 Files	624	IFL Files	666
Importing TRC Files	626	Image File List Control Dialog	668
Exporting HTR/HTR2 Files.....	627	IFL Manager Utility.....	668
Shockwave Files (W3D)	628	IMSQ Files.....	669
Exporting to Shockwave 3D.....	628	JPEG Files.....	670
Shockwave 3D Scene Export Options Dialog.....	629	MOV (QuickTime Movie) Files.....	670
Shockwave 3D Export Preview.....	633	MPEG Files.....	671
Shockwave 3D File Analysis Window	634	OpenEXR Files	671
Stereolithography (STL) Files	635	OpenEXR Files	671
Importing STL Files	635	Saving OpenEXR Files	672
Exporting to STL.....	636	Opening OpenEXR Files.....	675
Wavefront (OBJ, MTL) Files	637	PIC Files.....	677
Importing Wavefront (OBJ, MTL) Files.....	637	PNG Files.....	678
Exporting Wavefront Object (OBJ) Files	637	PSD Files.....	678
Exporting Wavefront Material (MTL) Files.....	639	RLA Files	680
VRML Files	639	RPF Files.....	681
Importing VRML Files.....	639	RGB (SGI Image) Files.....	683
Exporting to VRML97	640	TGA (Targa) Files.....	683
VRML97 Export	643	TIFF Files.....	684
VRML97 Export.....	643	YUV Files	685
VRML97 Tips	643	RAM Player	685
Using the Polygon Counter Utility.....	645	RAM Player	685
VRML97 Specification	645	RAM Player Configuration Dialog	687
VRML97 Helper Objects	646	Schematic View.....	688
VRML97 Helper Objects.....	646	Schematic View Window	688
Anchor VRML97 Helper.....	646	Using Schematic View	690
ProxSensor VRML97 Helper	647	Schematic View Menus	692
NavInfo VRML97 Helper.....	648	Schematic View List Views.....	694
Fog VRML97 Helper	649	Schematic View Preferences Dialog.....	695
Sound VRML97 Helper	649	Schematic View Toolbars	699
LOD VRML97 Helper.....	651	Schematic View Display Floater.....	701
TouchSensor VRML97 Helper	652	Schematic View Commands.....	702
TimeSensor VRML97 Helper.....	653	New Schematic View	702
Background VRML97 Helper	654	Delete Schematic View	702
AudioClip VRML97 Helper	655	Delete Schematic View Dialog	702
Billboard VRML97 Helper.....	656	Saved Schematic Views.....	702
Inline VRML97 Helper	657	Schematic View Selection Right-Click Menu	702
Image File Formats	657	Layers	704
Image File Formats.....	657	Using Layers to Organize a Scene	704
AVI Files.....	658	Layer Manager	706
BMP Files.....	659	Layer Properties Dialog.....	711
CIN (Kodak Cineon) Files	659	Layer List	715
CWS (Combustion Workspace) Files	660	Create New Layer	716
DDS Files	660	Add Selection to Current Layer	716
EPS and PS (Encapsulated PostScript) Files.....	661	Select Objects in Current Layer	716
FLC Files.....	662	Set Current Layer to Selection's Layer	716
GIF Files.....	662	21 User Interface.....	717
HDRI Files.....	663	User Interface	717
IFL File Format	666		

Additional Keyboard Commands.....	717	Animation and Time Controls.....	759
Toggling Dialogs.....	718	Animation and Time Controls.....	759
Starting 3ds Max from the Command Line.....	719	Auto Key Animation Mode	760
Menu Bar	720	Set Key Animation Mode.....	761
Menu Bar	720	Default In/Out Tangents For New Keys	764
File Menu	721	Go To Start	765
Edit Menu.....	721	Previous Frame/Key	766
Tools Menu	722	Play/Stop	766
Group Menu	722	Next Frame/Key	767
Views Menu	722	Go To End	767
Create Menu	723	Current Frame (Go To Frame)	767
Modifiers Menu.....	726	Key Mode	767
Character Menu.....	729	Time Configuration	768
Reactor Menu	729	Viewports and Viewport Controls	772
Animation Menu.....	729	Viewports	772
Graph Editors Menu.....	730	Viewport Right-Click Menu	774
Rendering Menu.....	731	Viewport Controls	778
Customize Menu	731	Viewport Controls.....	778
MAXScript Menu.....	732	Controls Available in All Viewports	780
Help Menu	732	Zoom Extents All, Zoom Extents All Selected	780
Toolbars.....	732	Maximize Viewport Toggle	780
3ds Max Toolbars	732	Walkthrough Controls for Perspective and	
Main Toolbar	733	Camera Viewports	780
Axis Constraints Toolbar	735	Pan/Truck and Walkthrough Flyout	780
Layers Toolbar	735	Walk Through Button	781
reactor Toolbar	736	Perspective and Orthographic Viewport	
Extras Toolbar	736	Controls	781
Render Shortcuts Toolbar	736	Perspective and Orthographic Viewport	
Snaps Toolbar	737	Controls	781
Brush Presets Toolbar.....	737	Zoom Viewport	782
Brush Preset Manager	739	Zoom All	782
Right-Click Menu for Scripted Toolbar Buttons.....	741	Zoom Extents / Zoom Extents Selected.....	783
Quad Menu.....	741	Field of View Flyout	784
Quad Menu.....	741	Field-of-View Button	784
Additional Quad Menus.....	744	Zoom Region	785
Animation Quad Menu	745	Pan View	786
Status Bar Controls.....	746	Arc Rotate Flyout.....	786
Status Bar Controls.....	746	Arc Rotate, Arc Rotate Selected, Arc Rotate	
Prompt Line	746	Sub-Object	787
MAXScript Mini Listener	746	Camera Viewport Controls	788
Status Line	748	Camera Viewport Controls.....	788
Time Slider	748	Dolly Camera, Target, or Both	788
Track Bar	750	Perspective	789
Selection Lock Toggle	754	Roll Camera	790
Coordinate Display	755	Truck Camera	791
Grid Setting Display	757	Orbit/Pan Camera	791
Time Tag.....	757	Light Viewport Controls.....	792
Add Time Tag Dialog	757	Light Viewport Controls	792
Edit Time Tag Dialog	758	Dolly Light, Target, or Both	793

Light Hotspot	794
Roll Light	796
Light Falloff	796
Truck Light	797
Orbit/Pan Light	798
Command Panels	799
Command Panel	799
Object Name and Wireframe Color	800
Create Panel	800
Create Panel	800
Modify Panel	801
Modify Panel	801
Modifier Stack Controls	802
Modifier Stack Right-Click Menu	809
Make Unique	812
Modifier Sets Menu	814
Configure Modifier Sets Dialog	815
Hierarchy Panel	816
Hierarchy Panel	816
Motion Panel	817
Motion Panel	817
Assign Controller Rollout	817
Display Panel	818
Display Panel	818
Display Floater	818
Utilities Panel	821
Utilities Panel	821
Utilities Dialog	822
Configure Button Sets Dialog	822
MAXScript Interface	823
MAXScript Menu	823
New Script	824
Open Script	824
Run Script	824
MAXScript Listener	824
Macro Recorder	825
Visual MAXScript Utility (See MAXScript Reference)	826
MAXScript Debugger Dialog	826
Running Scripts from the Command Line	826
22 Customizing the User Interface	829
Customizing the User Interface	829
Customize Display Right-Click Menu	831
Show UI	832
Lock UI Layout	832
Plug-In Manager	832
Custom UI and Defaults Switcher	833
Market-Specific Defaults	834
COM/DCOM Server Control Utility	835
Customize User Interface Dialog	836
Customize User Interface Dialog	836
Keyboard Panel	837
Toolbars Panel	838
Quads Panel	839
Menus Panel	842
Colors Panel	843
Advanced Quad Menu Options	845
Edit Button Appearance Dialog	847
Saving and Loading Custom User Interfaces	848
Saving and Loading Custom User Interfaces	848
Load Custom UI Scheme	849
Save Custom UI Scheme	850
Revert to Startup Layout	851
Configure Paths	852
Configure Paths	852
Configure User Paths	852
Configure System Paths	854
External Path Configuration	855
File I/O Path Configuration	856
XRefs Path Configuration	857
Plug-Ins Path Configuration	857
Network Plug-In Configuration	858
Preferences	859
Preferences	859
General Preferences	859
Rendering Preferences	863
Inverse Kinematics Preferences	865
Radiosity Preferences	866
mental ray Preferences	867
Animation Preferences	868
File Preferences	870
Gamma and LUT Preferences	873
Viewport Preferences	874
Gizmos Preferences	877
MAXScript Preferences	879
Graphics Driver Setup	881
Graphics Driver Setup Dialog	881
Configure Driver	883
Configure Software Display Driver Dialog	884
Configure OpenGL Dialog	884
Direct3D Driver Setup Dialog	887
Configure Direct3D Dialog	888
MIDI Time Slider Control Setup	890
MIDI Time Slider Control Setup Dialog	890
Units Setup	891
Units Setup Dialog	891
System Unit Setup Dialog	893

File Load: Units Mismatch Dialog	895	A	Using the Reference Online	965
Viewport Configuration	896	B	Troubleshooting 3ds Max	977
Viewport Configuration.....	896		Glossary.....	995
Viewport Configuration Dialog.....	896		Index	1133
Rendering Method	896			
Viewport Layout.....	899			
Safe Frames.....	899			
Adaptive Degradation Options.....	901			
Regions	902			
Entering Commands by Using Mouse Strokes ...	903			
Strokes	903			
Defining Strokes	905			
Reviewing and Editing Strokes	907			
Stroke Preferences Dialog	908			
Strokes Utility	909			
23 Default Keyboard Shortcuts	911			
Default Keyboard Shortcuts.....	911			
Keyboard Shortcut Override Toggle	912			
ActiveShade Shortcuts.....	913			
Biped Shortcuts	913			
Biped Curve Editing Shortcuts	915			
Cloth Shortcuts.....	915			
Crowd Shortcuts.....	916			
Edit Normals Shortcuts	916			
Edit Poly Shortcuts	917			
Edit/Editable Mesh Shortcuts	918			
Edit/Editable Patch Shortcuts	919			
Edit/Editable Spline Shortcuts	920			
Editable Poly Shortcuts	920			
Free-Form Deformation (FFD) Shortcuts	921			
Garment Maker Shortcuts.....	922			
Main User Interface Shortcuts	922			
Material Editor Shortcuts	946			
NURBS Shortcuts.....	947			
Object Display Culling Shortcuts.....	949			
Particle Flow Shortcuts.....	949			
Physique Shortcuts	950			
Reaction Manager Shortcuts	950			
Schematic View Shortcuts.....	951			
Track View Shortcuts	952			
Unwrap UVW Shortcuts.....	954			
Video Post Shortcuts	961			
Walkthrough Navigation Shortcuts	962			
Weight Table Shortcuts.....	962			