MicroStation V8i Visualization Update

Chris Bober - Director, MicroStation Product Line
Why Luxology?

- Produce high quality images using pre-configured settings to better balance speed and quality
- Deliver photo-realistic interior and exterior views using lighting and textures that mirror project reality
- Improve stakeholder insight and secure buy-in
- Validate the fit and finish of a project
- Secure project funding for design alternatives
MicroStation V8i (SELECTseries 1)

- Luxology Rendering Engine
  - Quality/Performance Slider
  - Material Preview Window
  - Per-material Shader Options
  - Material Preview Lighting
  - Glow Maps
  - Clear Coat Maps for Materials
  - Fur Rendering
  - Volume Lighting
  - Dome Lights
  - Reuse Solution
  - Fog
  - HDR Image Preview

- Updated Capabilities Based on Luxology Rendering Engine
  - Lighting Setups
  - Light Manager
  - Multi-layered Materials
  - Solar Study and FlyThrough

- Luxology Distributed Rendering System

- Animation
  - Camera Speed Control
  - Luxology Animation Tone Mapping
MicroStation V8i (SELECTseries 2)

- (SELECTseries 2)
  - Additional Render Outputs
  - Usability Improvements
    - Material Editor dialog
    - Light Manager dialog
    - Environment Settings dialog
    - Luxology Image Settings dialog
    - Luxology Render dialog
  - Animator Improvements
Simplified Lighting
Realistic Materials
Realistic Materials
Performance, Performance, Performance

- Native 64 Bit Engine
- Use up to 32 Cores
- Real Time Updates
  Onscreen
The Iterative Advantage

• Save Time
  – Near real-time rendering
  – 64-bit rendering engine
  – Create time for more design review iterations

• Improve Quality
  – Photo-realistic images
  – Better design
  – Higher Project Win-Rate

• Increase Profits
  – More Efficient Teams
  – Lower Operating Costs
Recipe for Success
Visualization Recipe

• Main Ingredients
  – Camera
  – Render Settings
  – Lights
  – Environment
  – Materials
  – Output
  – Fast Hardware
Visualization Recipe

- Main Ingredients
  - Camera
  - Render Settings
  - Lights
  - Environment
  - Materials
  - Output
  - Fast Hardware
Scene Composition
Camera

- Setup
- Define (Manipulate)
- Photomatch
- Camera Lens
- Focal Distance
Camera Setup

- New Camera Graphics
  - Pan
  - Tilt
  - Roll

- Support for 3D Mice

- Focal Distance
  - New Tool
Lighting
With New Lighting in MicroStation V8i…

• High Quality
  – Consistent Lighting
  – Increased Depth

• Visually Reliable
  – Physically Correct
  – Undeniably Real

• Accurate
  – Light Conditions
  – Environments
Lighting in MicroStation V8i

- Global Illumination
  - Bounced light
  - Why settle for less
  - Even exteriors
- Extremely fast
- Easy to use
  - Ambient Occlusion
Lighting in MicroStation V8i

- High Dynamic Range Light Probes
- Physical & Gradient Skies

~ 15 Seconds
Volume Lighting Lighting in MicroStation V8i
Lighting in MicroStation V8i

- Spherical Environments
- HDR Light Probes
- Image Based Lighting
- Gradient Skies
- Physical Sky
Lighting in MicroStation V8i

Visibility options
- Visible to camera
- Visible to Indirect lighting
- Visible to reflections
- Visible to refractions

Horizon options
- Rotation
- Horizon Offset
Lighting in MicroStation V8i

- Place Light
- Handles
Lighting in MicroStation V8i

- Light Manager
- Light Setups
Materials
With Realistic Materials in V8i...

- **High Quality**
  - Images Appear 3D
  - Materials Come Alive

- **Totally Convincing**
  - Subtle Materials
  - Reflect Reality

- **Physically Correct**
  - True Visual Depth
Realistic Materials in MicroStation V8i

- Displacement mapping
- Blurry reflections
- Anisotropic materials
- Opacity maps
- Blurry refraction
- Clearcoat – Paints
- Clearcoat Maps
- Luminous – Glow lights
- Subsurface Scattering
- Dispersion (Prismatic)
- Fur
- Bentley_materials.dgnlib
- Entourage
- LXP
Rendering in MicroStation V8i

- Render Settings
  - Ambient Occlusion
  - Caustics
  - Draft, Depth
  - Depth of Field
  - Exterior
    - Good, Better & Best
  - Interior
    - Good, Better, Best & Extreme
  - Preview (Light & Materials)
Rendering in MicroStation V8i

- Rendering output channels
  - More realistic renderings
  - Improves post-processing options
  - Visible edges overlay, stereo, etc..
  - Piranesi EPIX
Rendering in MicroStation V8i
Iterative Luxology Rendering

What’s Ahead in MicroStation V8i (SELECTseries 3)
Iterative Luxology Rendering

- Model Population
  - Improved realism of images and animation.
  - Greatly improves productivity for populating 3D models.
  - Random Scaling and Rotation Options
  - Paint Content
  - Place Along Path
Iterative Luxology Rendering

Fast Preview

- Significantly decrease the time to create images by increasing the speed of previews
- Regenerates a photo-realistic rendered scene in near-real time
- Material Preview
- Light Preview
Iterative Luxology Rendering

• Geometry Maps
  – Hidden line views are more accurate and realistic
  – Provides an efficient and convenient method for applying geometric patterns to three dimensional surfaces
  – Sections and Cuts!
Iterative Luxology Rendering

- Pavement Marking
  - Create realistic traffic renderings and animations without additional work
  - Creates 3D render ready pavement marking from 2D designs
Iterative Luxology Rendering

• Traffic Animation
  – Produce compelling highway and urban animations without needing specialized knowledge or software.
  – Provides a workflow centric approach making it easy to create complex animations of traffic
  – Vehicles align to roadway
  – Vehicle speed variation
  – Merging and Exiting Traffic
    • Vehicles maintain safe distance

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Iterative Luxology Rendering

• More Great Capabilities
  – Native RPC Support
  – Update Procedural Textures
  – Auto Color Map Gamma
  – Material Stroke Tolerance
  – HDR Image Preview
Infinite Processing Power

- Distributed Rendering
- Rendering in the Cloud
With MicroStation V8i...

...satisfy all render needs in one product
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