



VR Hardware Equipment, Software, and Network Requirements **(Webinar Series Session #3)**

May 5, 2020

Presented by Ray Deatherage



Webinar Series Overview – 8 Sessions

- Session #1: VR Users Committee Introduction (April 9)
- Session #2: Industry Training Challenges and VR Benefits and Use Cases (April 21)
- Session #3: Hardware Equipment, Software, and Network Requirements (May 5)
- Session #4: Control Center Overview* (May 19)
- Session #5: Authoring Tool* (Scoring Manager) (June 2)
- Session #6: Module Development and Maintenance (June 16)
- Session #7: Current and Future VR Training Modules (June 30)
- Session #8: Technology Integration and Support Services (July 14)

Meeting Agenda

- Recap Session #2
- Hardware Equipment
- Software Requirements
- Network Requirements
- IT Security
- PixoVR – Developer Input on Today’s Topics
- Group Discussion
- Next Steps



Session #2 Recap

- Survey Data Review
- Industry Training Challenges
- Industry Successfully Using VR Training
- Benefits of VR Training
- VR Training and Qualification Uses Cases
- ROI Considerations
- PixoVR Examples with Other Industries

Let's
Recap

Hardware Equipment Topics

- Equipment Types
- Equipment Benefits and Disadvantages
- Equipment Evaluated by GTI
- Recommended Equipment
- Equipment Cleaning and Sanitizing



Hardware Equipment Types

- Tethered Systems
(e.g., Laptop and headset)
- Wireless Systems
(e.g., Headset only)



Hardware Equipment Benefits and Disadvantages

- **Tethered:**

- **Benefits:** Fidelity of environment*, loading of content*, length of play, great for displaying training environment on monitor.
- **Disadvantages:** Higher investment cost, set-up of equipment, multiple pieces of hardware equipment to keep updated, play area space requirements, ability to test new module development, headset vision outside boundaries, and ability to transport equipment to new location.

- **Wireless:**

- **Benefits:** Lower investment cost, set-up of equipment, only one piece of hardware equipment to keep updated, play area space requirements, ability to test new module development, headset vision outside of boundaries, and ability to transport equipment to new location.
- **Disadvantage:** Fidelity of environment*, loading content*, length of play, requires Bluetooth device (e.g., smartphone, tablet, etc.) to set-up equipment, displaying training environment on monitor.

Hardware Equipment Evaluated by GTI

- HTC Vive
- HTC Vive Pro v1.0
- HTC Vive Pro v2.0
- HTC Cosmos
- HTC Vive Pro Eye*
- Oculus Quest



Recommended Hardware Equipment (Headset)

Tethered System

- HTC Vive Pro v2.0
 - 32'x32' Play Area
 - Multi-User
 - Hand Controller Functionality
 - Audio System
 - Enterprise Durability



Wireless System

- Oculus Quest 128GB



Recommended Hardware Equipment (Laptop)



Asus ROG Strix Scar II Gaming Laptop,
17.3" 144Hz IPS-Type FHD, NVIDIA
GeForce RTX 2070 8GB, Intel Core i7-
8750H Processor, 16GB DDR4 RAM,
512GB PCIe SSD + 1TB SSHD, RGB KB,
Windows 10 - GL704GW-DS76

*Connection ports are critical depending on your VR usage.
For example, displaying training environment on a monitor.
Types of ports - USB 2.0, USB 3.0, HDMI, LAN, etc.*

Hardware Equipment Cleaning and Sanatizing

- Sanitizing wipes (bulk or packet)
- Hand sanitizer gel
- Leather facemasks for the headset
- Disposable facemasks for the user



Software Requirements

All software applications are free downloads online. Use of VR training modules online requires an internet connection. This can be accomplished through a company network connection or wireless Wi Fi hot spot device.

Steps for software installation:

- Initial Computer Set-Up
- Load Steam Application
- Load SteamVR Application
- Load DirectX Application



Microsoft
DirectX

Network Requirements

An internet connection is required for authentication, connection, hardware equipment updates, software equipment updates, training data transfer, etc.

- Wi Fi
 - Office Network
 - Smartphone/Tablet Hot Spot
 - Mi Fi Device
- Network Landline



PixoVR Update on Today's Topics

- Hardware Equipment
 - Future State
- Software
 - Current State
 - Future State
- Network Requirements
- IT Security



Hardware Equipment – Future State (PixoVR)

- Desktop Capability
- Hand-Tracking
- HTC Focus Plus (Wireless Headset)
- Pico Headset (Wireless Headset)



Developer Software (PixoVR)



Current State

- **Unreal Engine:** Advanced real-time 3D creation tool.
- **Unity Engine:** Advanced real-time 3D creation tool.

Future State

- Data Driven Content - Put content customization in the hands of trainers.
- For example, AOC's, Safety Hazards, PPE, Communication, Procedural Steps, Tools, Scoring, Time Manager, and Environment.



Network Requirements (PixoVR)

- **Wireless Headsets** (Oculus Quest): Requires a Wi-Fi connection for authentication and connection.
- **Tethered Headsets** (HTC Vive Pro): Requires a land connection or Wi-Fi connection for authentication and connection. In addition, internet connection required to run Steam software, for questions visit <https://store.steampowered.com/>

**Note: All headsets will require an internet connection to download the software required to run the headset.*

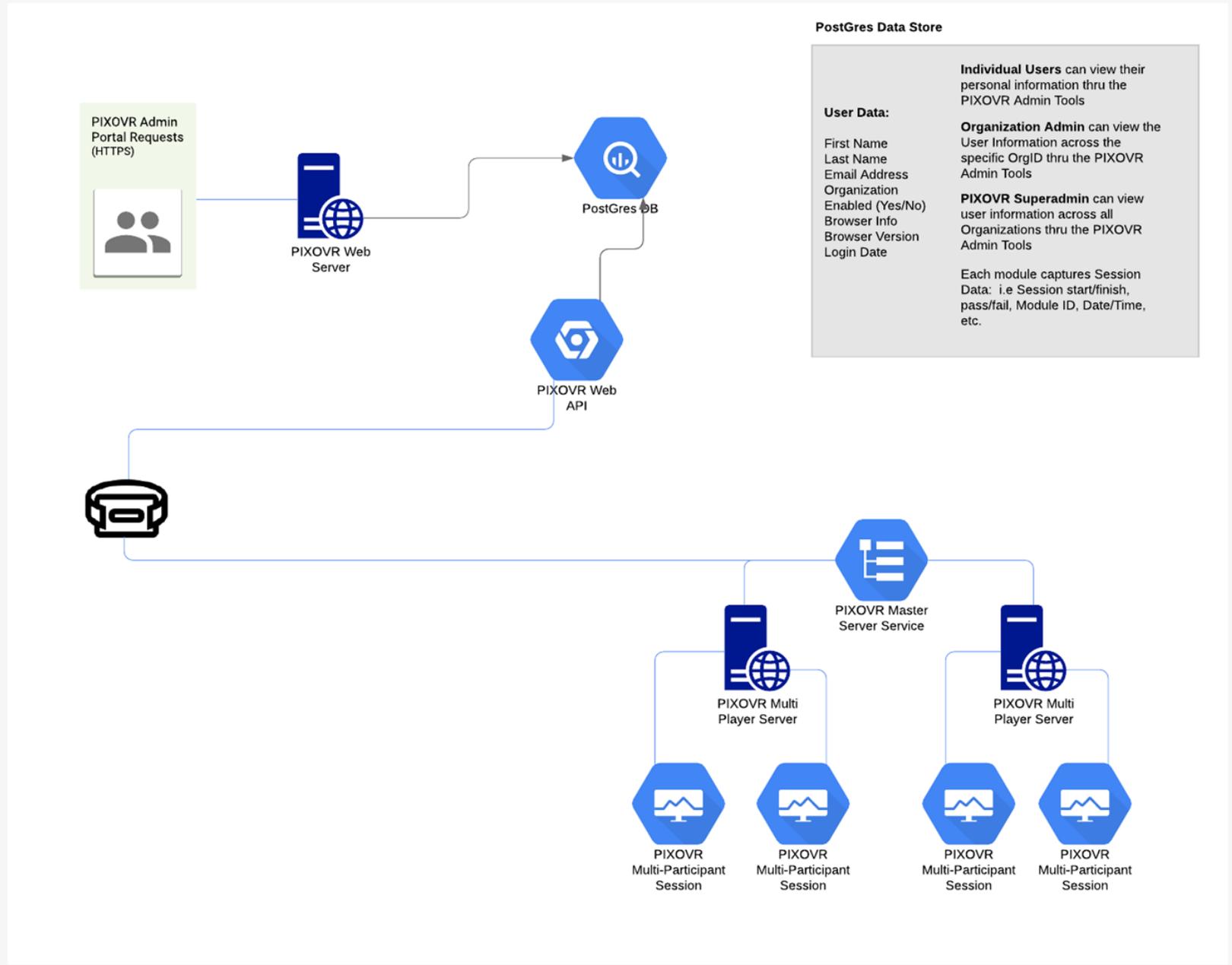


IT Security

- Company servers are not required, this is a hosted solution.
- Currently Single Sign On (SSO) is not supported, but PixoVR understands the need and can work on case by case basis to integrate with legacy systems.

See PixoVR network diagram on next slide.

PIXO VR Network Diagram



Next Steps

- Invite the necessary company stakeholders to participate in **Session #4 on May 19th: Control Center Overview** – Content Management, Administrator & Trainee Management, Trainee Data Analytics, Scoring Manager (Authoring Tool), Training Data Transfer.
- Complete VR survey – Based on the topic of each webinar session and the questions raised by participants, a short survey will be created and distributed. The results will be shared with participants during the next webinar session.
- Continue to collect VR questions from your organization and submit to GTI (Ray).

Stay Safe and Healthy!



Questions?

Ray Deatherage

rdeatherage@gti.energy

(847) 768-0942

Presenter Biography

Ray Deatherage – Senior Program Manager with GTI

- 27+ years experience in the natural gas industry
- 25+ years experience with a gas distribution company
 - Operations, Standards, Materials, Failure Analysis, Quality Assurance, Compliance, Training, and Operator Qualification
- 15+ years experience developing, delivering, and maintaining training and qualification programs
- 4+ years experience evaluating and developing VR training technologies
- VR/AR Association Member – Chicago Chapter
- VR/AR Energy Committee Member
- MEA Technical Training Committee Member