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Configuration requirements

The Innerspace VR Simulator is an advanced VR Simulator training solution designed for immersive, high-quality VR experiences. To ensure stable operation, consistent performance, and smooth user experience, specific hardware, software, network, and configuration requirements must be met.

This document outlines the technical prerequisites for deploying and running the Innerspace VR Simulator solution, including the mandatory components to be installed and the necessary system configurations.

Note
In the case hardware is sourced as **managed hardware from Innerspace**, Innerspace acts as the **VR Equipment Administrator** and ensures all requirements are met.

If the system is **deployed and managed by the customer**, compliance with all requirements listed in this document is essential.
Not following these requirements may result in the **solution not functioning** correctly or **failing** to meet the **expected performance and quality standards**.

Minimum Hardware Specification

If the hardware specification is not met the solution quality and performance can't be guaranteed.

VR Simulator Laptop

The VR Simulator Laptop needs to fulfill following minimum requirements in order to ensure smooth operation of the Innerspace Simulator Solution.

As in standard case Innerspace will be the VR Equipment Administrator and manages the VR-equipment this will be ensured by Innerspace.

Component	Minimal requirement
Operating System	Windows (11 22H2)
CPU	Intel i7 (14th gen)
RAM	16GB
GPU	Nvidia RTX4070 (laptop version)
Local Storage	500Gb SSD
Ports	2x USB-A 3.0 1x USB-C 1x HDMI (optional)

VR Streaming Router

To ensure stable and high-performance streaming of VR content to the VR headset (Meta Quest 3), a **dedicated VR Streaming Router** must be used. This router must meet the following minimum technical specifications:

- **Wi-Fi Standard**: Wi-Fi 6 (802.11ax)
- **Frequency Band**: 5 GHz
- **Minimum Dedicated Bandwidth**: 400 Mbps (600 Mbps or higher recommended)

These requirements are met within the supplied Innerspace Simulator Hardware through the inclusion of the **PrismXR Puppis S1** — a router specifically designed for VR streaming use cases. We strongly recommend using this dedicated VR Streaming Router to ensure optimal streaming quality, low latency, and reliable performance.

VR Headset Requirements

To operate the Innerspace Simulator solution, the following VR headset is required. The headset must meet or exceed the minimum specifications listed below to ensure compatibility, performance.

Component	Required Specification	Details
VR Headset	**Meta Quest 3**	Must be used as the standard headset for streaming and interaction with the Innerspace solution.

Operating system requirements

To ensure the required performance and **smooth, uninterrupted operation** of the Innerspace VR Simulator, the following services and system settings must be enabled and correctly configured on the VR Simulator Laptop:

Service / Setting	Requirement	Rationale
Internet Connection Sharing (ICS)	Must be **enabled** on the VR Simulator Laptop.	The Meta Quest 3 headset periodically requires internet access for OS updates and Mobile Device Management (MDM) check-ins. Since the headset is connected to the dedicated VR Streaming Router (without direct internet access), internet connectivity must be shared via the VR Simulator Laptop using ICS to ensure continuous availability of the solution.
Power Management	**High Performance** power profile must be selected in Windows power settings.	To maintain maximum performance and stability during VR operation, the system must not throttle performance due to power-saving measures. Enabling the High Performance mode ensures consistent and reliable performance.
USB port availability	**Two free and enabled USB port** must be available and not blocked by security policies or third-party software.	Used for direct communication between the VR Simulator Laptop and the VR Streaming Router. Required for stable system communication to stream the VR content to the VR headset.
Scheduled Task Support *(Recommended)*	**Support for scheduled tasks running under the *SYSTEM* account** with access to AppData folders.	Innerspace uses scheduled tasks to reset or restore configuration settings for the **Streaming** and **Graphic Card Applications**. This helps maintain long-term system stability and performance.

These configurations must be applied to ensure the VR Simulator operates as intended.

Software applications

To operate the Innerspace Simulator solution, the following software applications must be installed on the VR Simulator Laptop. These applications include the Innerspace Simulator Launcher App and essential third-party software packages.

In case the hardware is sourced as managed hardware from Innerspace, **Innerspace acts as the VR Equipment Administrator** and is responsible for installing and configuring all required software.

Important
In customer-managed hardware scenarios, any additional or unauthorized software installations may negatively impact the solution's performance and stability. In such cases, **standard subscription support does not apply**.

Required Software

Application	Supported Version	Functionalities

Innerspace Simulator Launcher App (Innerspace Hub)	3.7.0	• Authenticate with Simulator Cloud Services
		• Download content from content storage
		• Provide UI to start anonymous and e-documentation with PDF Simulator trainings
		• Start selected training module in one of the following use cases
		  ◦ UC-1: Perform a **VR Simulator training via LMS**
		  ◦ UC-2: Perform **VR Simulator training with e-documentation via Simulator Launcher App (PDF)**
		  ◦ UC-3: **Anonymous Simulator training** - Perform VR Simulator training without e-documentation via the Simulator Launcher app:
		Use cases (UC-x) described in the FS document
		• Process received data from VR trainings and store it in LMS and Simulator Cloud Services

Application	Supported Version	Functionalities
SteamVR (Enterprise)	1.18.7	Streaming solution to connect the VR Headset to the PC (works together with ALVR) • Establish interface to hardware based on open XR standards • Configuration of specific VR software settings
ALVR	20.8.1	Streaming solution to display the Simulator content to the headset (works together with SteamVR) • Establish wireless communication with VR device • Configuration of specific VR software settings for best performance of the solution.
Nvidia Driver	latest stable version tested by Innerspace	Supported driver for the GPU
DirectX	latest stable version tested by Innerspace	Package needed to run the Streaming of the VR content to the headset
Visual C++ Redistributable for Visual Studio	2015	Package needed to run the Streaming of the VR content to the headset

Optional Software

Application	Supported Version	Functionalities
PrismXR desktop application	latest	Software to manage the VR Streaming Router settings from the VR Simulator Laptop.
Bomgar Remote support	latest	Software for remote support. *In the case of **customer-managed hardware**, any **privileged remote access tool** that allows the customer to grant secure access to Innerspace Support is acceptable. The specific tool used may be determined by the customer, provided it enables Innerspace to perform the necessary support and diagnostic activities when required.*

Network requirements

To operate the Innerspace VR Simulator solution effectively, the **VR Simulator Laptop must have a stable internet connection**. The connection must meet the following minimum performance specifications and allow access to specific services and endpoints required for smooth and reliable operation.

Minimum Internet Bandwidth

Direction	Minimum Required Bandwidth
Download	30 Mbit/s
Upload	10 Mbit/s

Endpoints and Ports

To ensure smooth and uninterrupted operation of the Innerspace Simulator solution, specific network endpoints and ports must be accessible. These are categorized below based on whether the system is **customer-managed** or managed by **Innerspace** as part of a managed hardware setup.

Always Required

These services are essential for all deployments of the Innerspace VR Simulator — regardless of who manages the hardware.

Service	Endpoint(s)	Port(s)	Direction
Simulator Cloud Services *Ensuring change control compliant content and configuration management, system analytics and monitoring*	• https://*.innerspace.at • https://innerspace-applications.s3.eu-central-1.amazonaws.com/ • https://innerspace-uploads.s3-eu-central-1.amazonaws.com/ • https://innerspace-applications.s3.eu-central-1.amazonaws.com/ • http://api-js.mixpanel.com/ • https://metrics.innerspace.at	443	Outbound (LAN → Internet)

Required Only for Innerspace-Managed Hardware

These services are only required when the VR Simulator solution is delivered and maintained by Innerspace, including system updates, remote support, and device management.

Service	Endpoint(s)	Port(s)	Direction
Meta Quest for Business *Device Management for Quest 3 Headset*	• http://meta.com/ • http://oculus.com/ • http://facebook.com/ • fbcdn.net • scontent.oculuscdn.com For IP based Firewall rules, please consider the following information. IP ranges used by Meta Quest for Business	80 / 443	Outbound (LAN → Internet)

Service	Endpoint(s)	Port(s)	Direction
Bomgar Cloud (Remote Support) *Enables remote support by Innerspace support*	• https://innerspace.bomgarcloud.com	443	Outbound (LAN → Internet)
Microsoft Intune VR *Simulator Laptop device management*	• login.windows.net • login.microsoftonline.com • sts.windows.net • innerspacecustomers.onmicrosoft.com	443	Outbound (LAN → Internet)
PrismXR Router *Updates for the Puppis S1 Streaming router*	• https://prismxr.net • 8.8.8.8 (for connectivity check)	8010, TCP 10081	Outbound (LAN → Internet)