

Setting Up BVI in VBS4 for HMD Connection Over Localhost

Prerequisites:

1. Software and Tools

- VBS4 installed
- Python 3.11 **installed**
- BVI software package (including ARES).
- RabbitMQ server installed.
- Erlang/OTP
- Wireshark (optional)
- Administrative access on the system
- HMD device supported by VBS4.

2. Network Configuration

- Localhost (127.0.0.1) or local network setup.
- Static IP configuration if using multiple devices on the same network.

Steps to Configure the System:

RabbitMQ Setup

1. Ensure RabbitMQ is installed and running.
2. Start the RabbitMQ server:
3. Run the following command:

```
rabbitmq-server.bat
```

Verify RabbitMQ is running using the command:

```
rabbitmqctl status
```

Ensure ports 5672 and 25672 are open.

Also, kill rabbitmq on each restart or shutdown or else service in bvi will be hung and will not start rabbit mq. Run the following here

"C:\Users\STEIn\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\RabbitMQ Server\RabbitMQ Command Prompt (sbin dir).lnk"

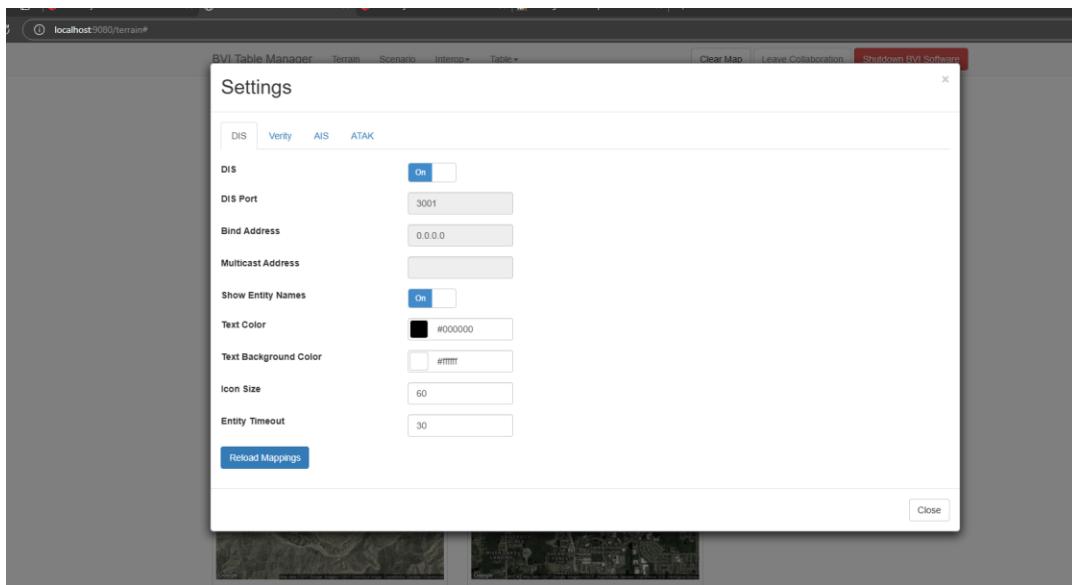
Net stop rabbitmq

ARES Configuration

1. Run Ares setup make sure RabbitMq is working and running

Ensure vbs4 entity mappings and bvi mappings match

Go to <http://localhost:9080/> and config these settings for DIS make sure port is set 3001



2. Launch Ares Pointer Senerio to make sure the setup for visuals is correct.
3. Run AresXR.
4. Connect supoorted headset via quest link or wireless connection
5. Ensure enviornment in AresXR shows up and functions properly

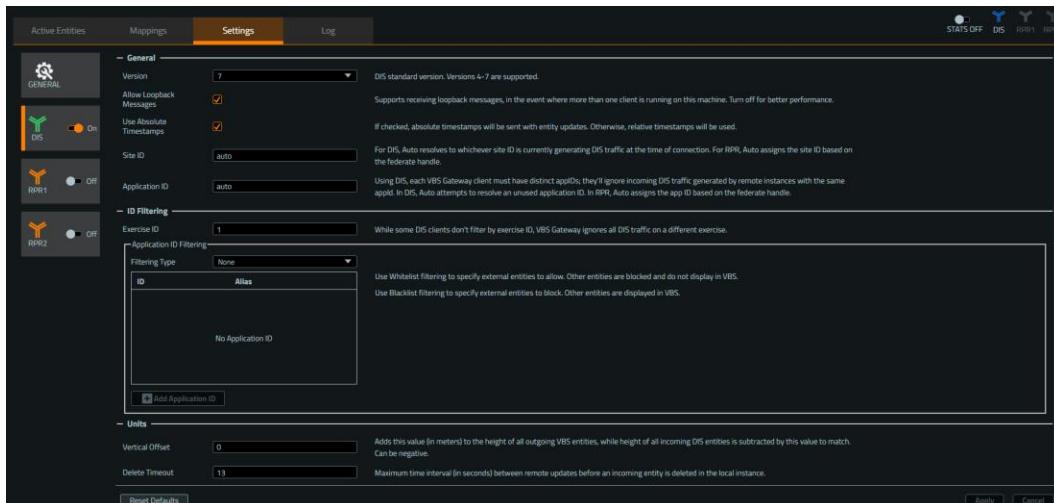
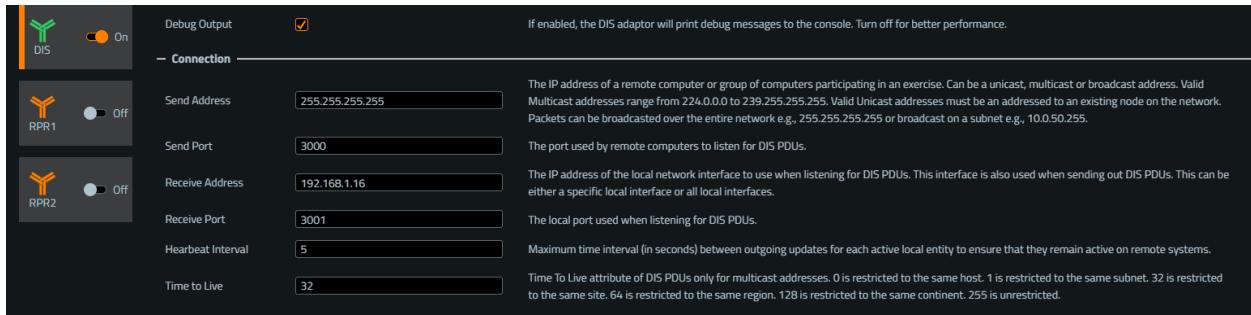
VBS4 Configuration

Configuring VBS4

When a VBS4 is launched ensure in server -gateway is enabled and run the scenario in server host to get the gateway settings

Locate VBS4 DIS Configuration (Editor → Tools → Show Gateway Gui

Make sure port ls set to 3000.



VBS4 uses DIS packets to send movement and entity data. The settings are configured in the following location:

C:\Bohemia Interactive Simulations\VBS4 24.1 YYMEA_General\Components\Gateway

Check and Update VBS4 Mappings (exported from Gateway)

(see VBS4 Gateway UI doc for more information)

Locate VBS4Mappings.csv in the directory mentioned above.

Ensure all required entities are mapped correctly.

- **VBS4 Mapping File:** C:\Bohemia Interactive Simulations\VBS4 24.1\YYMEA_General\Components\Gateway\VBS4Mappings.csv
- **BVI Mapping File:** C:\Program Files\ARES\ARES-dev-release-v0.9.4-c1d3950\ares.manager\config\dis_mappings.yml
- **Python Script:** update_mappings.py (provided in ares.manager\config\python folder)

2. Run the Python Script

Open Command Prompt (as Administrator) and navigate to the script directory:

```
cd "C:\Program Files\ARES\ARES-dev-release-v0.9.4-c1d3950\ares.manager\config\python"
```

Run the script:

```
python update_mappings.py
```

3. Verify Mapping Updates

- Check dis_mappings.yml to confirm updated mappings.
- Ensure VBS4Mappings.csv and dis_mappings.yml match.
- Open Wireshark and filter for DIS packets.
- Check for correct entity types in network logs.

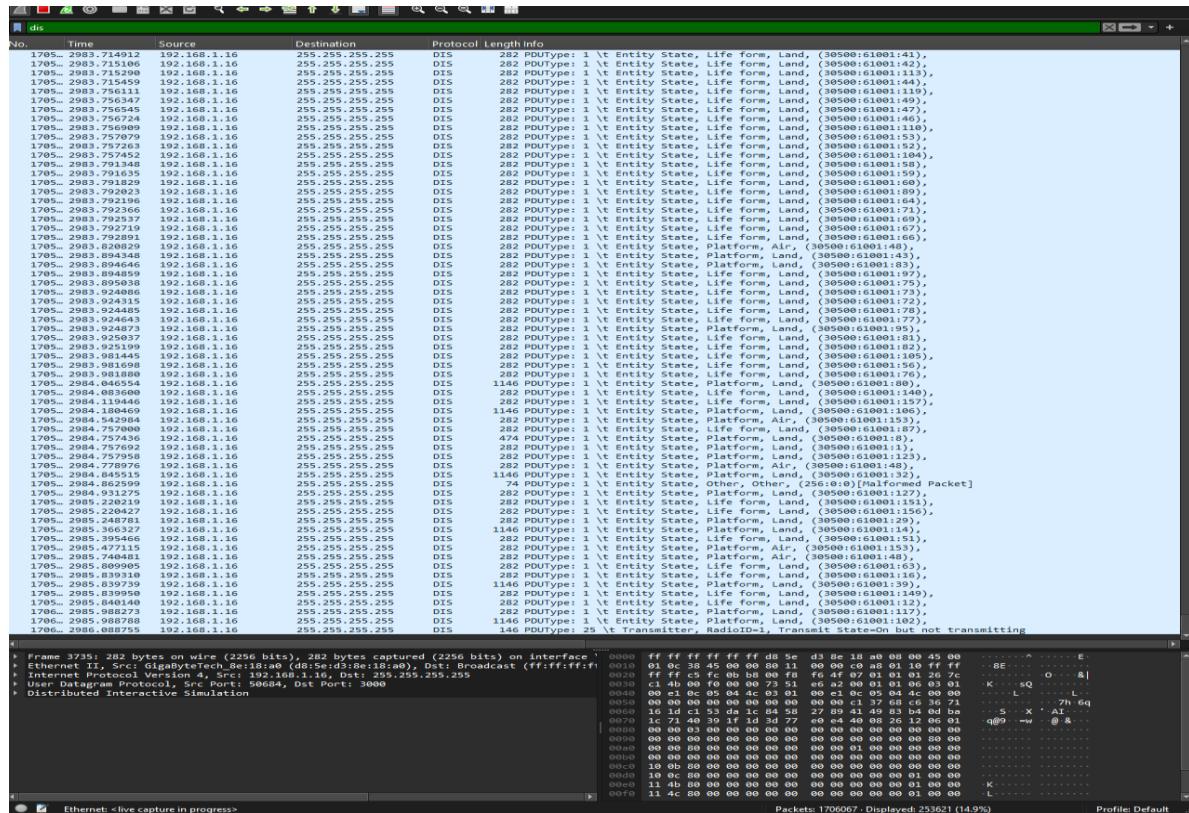
Ensure that the DIS_Enumeration numbers match between VBS4 and ARES XR.

Modify as needed to match the expected mappings.

Wireshark

Verify DIS Traffic

1. Open Wireshark.
2. Use the filter: DIS

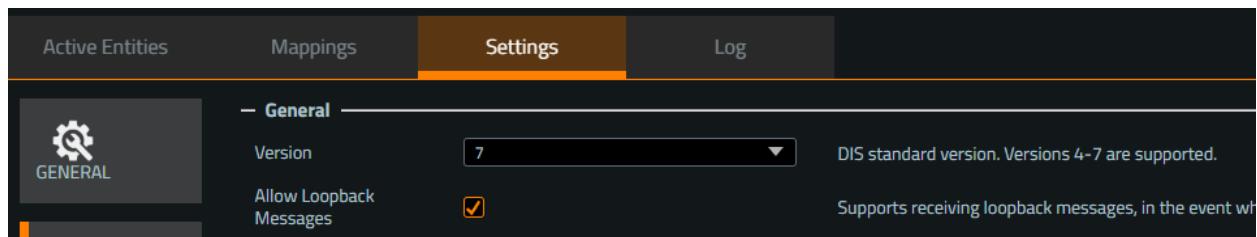


- 3.

Ensure you see packets with source 192.168.1.00 (or the machine's IP) and destination 255.255.255.255.

If packets are malformed:

Ensure DIS version is set to 7 in both VBS4



Verify that the correct send_port and receive_port are set to 3000 in ARES XR.

4. Check Network Configuration

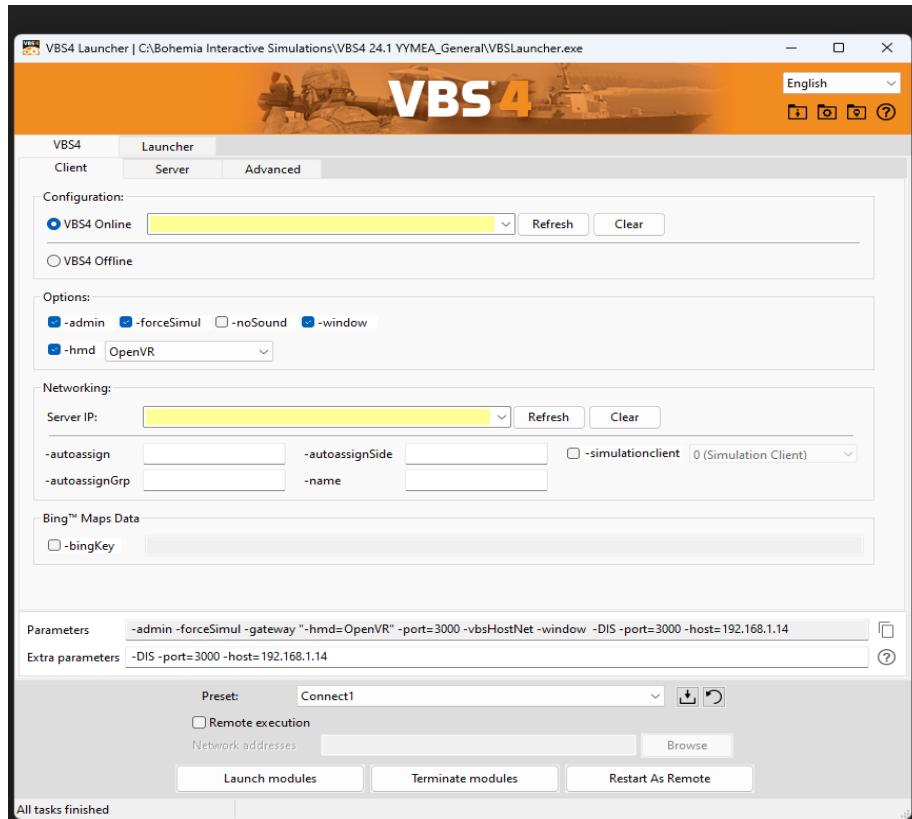
Run the following in CMD: [netstat -ano | findstr :3000](#)

Ensure ARES XR is listening on port **3000**.

I included a python script in this folder that I ran to make sure mappings were correct.

(where its located on my system)

"C:\Program Files\ARES\ARES-dev-release-v0.9.4-c1d3950\ares.manager\config\python update_mappings.py"



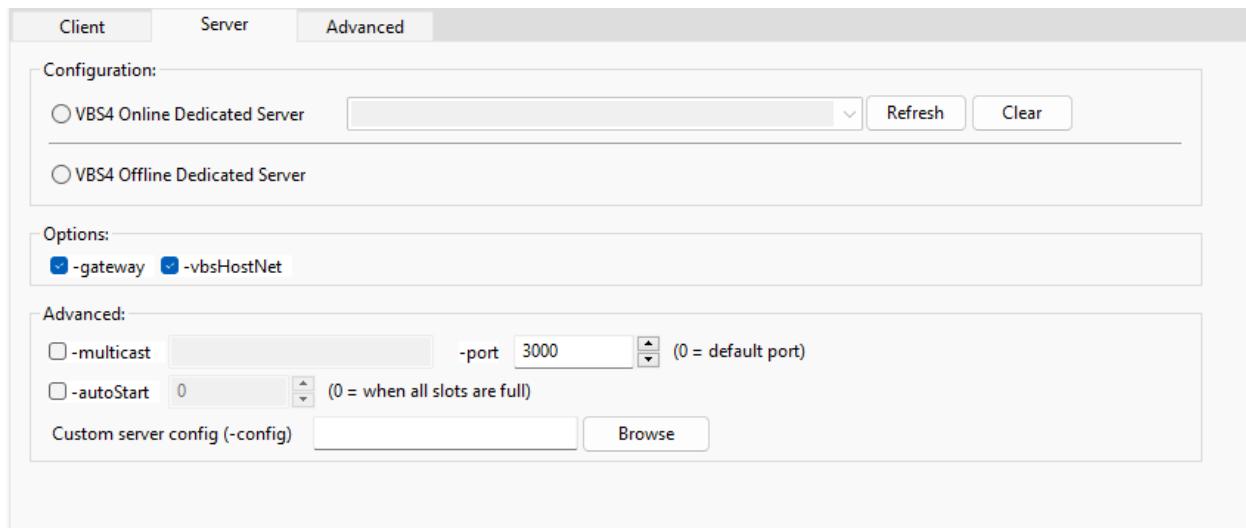
1. Launch the VBS4 Launcher.

2. Configure **Client Settings**:

- Set the configuration to VBS4 Offline or VBS4 Online based on your setup.
- Enable the following options:
 - -forceSimul
 - -hmd=OpenVR
 - -window

In extra Parameters you need to set these -DIS -port=3000 -host=192.168.1.14.

On the server side



- Set port to 3000.
- Enable -gateway and -vbsHostNet.

VBS4 config file "C:\Bohemia Interactive Simulations\VBS4 24.1
YYMEA_General\systems\dataSystem\plugins\OWSPlugin\config.cfg"

In the config file I modified the setting to set up a local host.

```
port=3000  
host=192.168.1.13 # IP of Ares XR machine  
Cache-Control=max-age=2630000, immutable
```

[DIS]

```
DIS_Enable=1  
DIS_Exercise_ID=1  
DIS_IP_Address=192.168.1.14 # Set this to Ares XR's IP (192.168.1.14)  
DIS_Port=3000  
DIS_Enable_Broadcast=1  
DIS_Broadcast_Interval=0.05  
DIS_Receive_Entities=1  
DIS_Send_Entities=1
```

Preset is Connect1

Initial Launch

Launch Ares Pointer Scenario

Launch AresXR

Launch VBS4 (with Connect1 presets)

Final Checklist

- VBS4 and ARES XR both uses DIS Version 7
 - VBS4Mappings.csv and dis_mappings.yml are synced using update_mappings.py
 - Wireshark confirms valid DIS packets
 - netstat -ano | findstr :3000 confirms port binding
 - Python script executed without errors
 - VBS4 objects appear in ARES XR live simulation
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