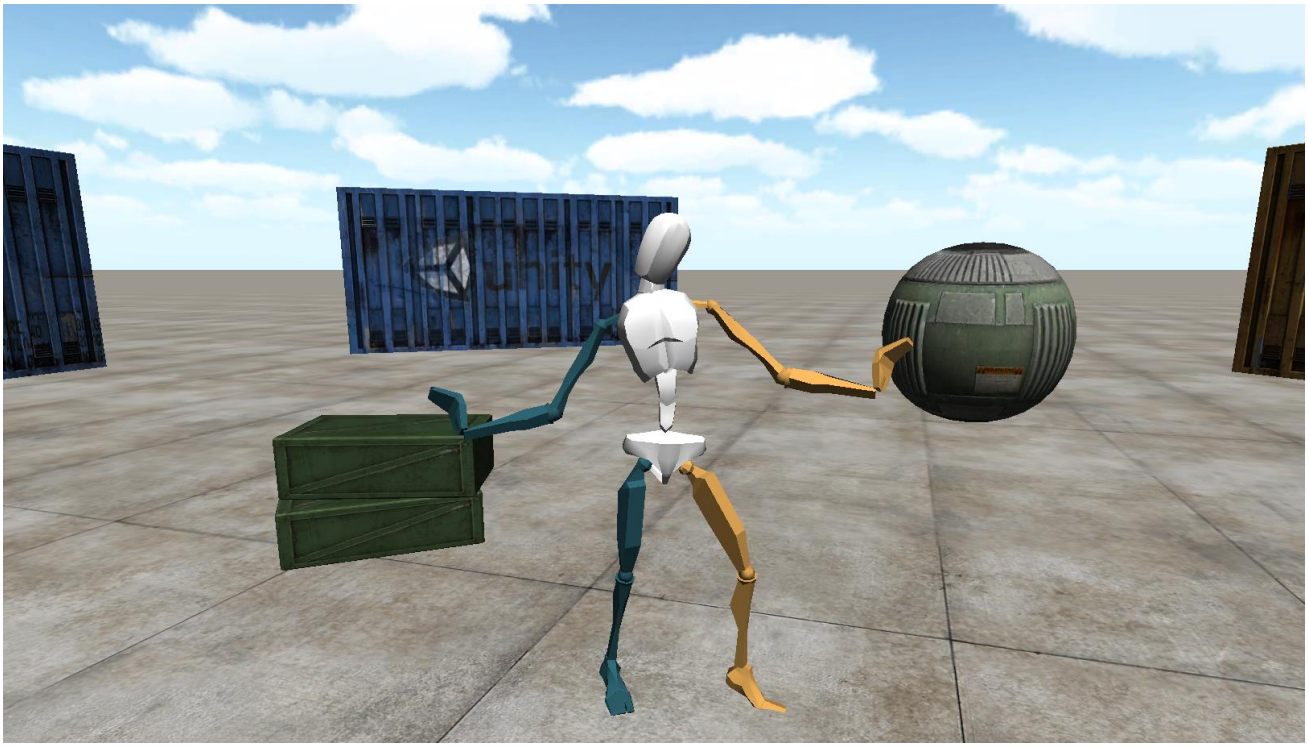
MVN Live Animation plug-in User Manual v1.0

Document MV0306P, Revision G, July 2013



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Revisions

Revision	Date	By	Changes
G	July 2013	SBU	Created for Unity Live plug-in

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1. Introduction

Xsens MVN Studio, developed by **Xsens**, is the main software tool for interfacing with the MVN inertial motion capture suit. MVN Studio allows the export of motion capture data to third party applications such as Unity, Maya, XSI, 3D Studio Max, MotionBuilder, etc. making the data available to drive rigged characters in animation and more. The data transfer to other applications is primarily file based (export) when using MVN Studio.

However, in many scenarios it is attractive to keep the ease of use of MVN Studio, but still being able to receive and process the motion capture data in real-time in another application, even on a another PC, possibly physically remote from the MVN system.

To this end, MVN Studio can act as a server on a network and stream motion capture data in real-time to a client PC running a client application. This document specifically treats the use of a certain client application able to receive motion capture data in real-time, Unity 4.

1.1 Character tool in Maya

The easiest way for MVN to send the complete full-body motion capture data to another application is to send the 3D positions and 3D rotations of each bone directly. MVN Studio is able to do this in real-time streaming over the network (quaternion and Euler based rotations).

The Quaternion based protocol especially developed for Unity is currently used to stream to Unity. On the receiving end Maya uses a gimbal killer in real-time and applies the data onto the MVN character.

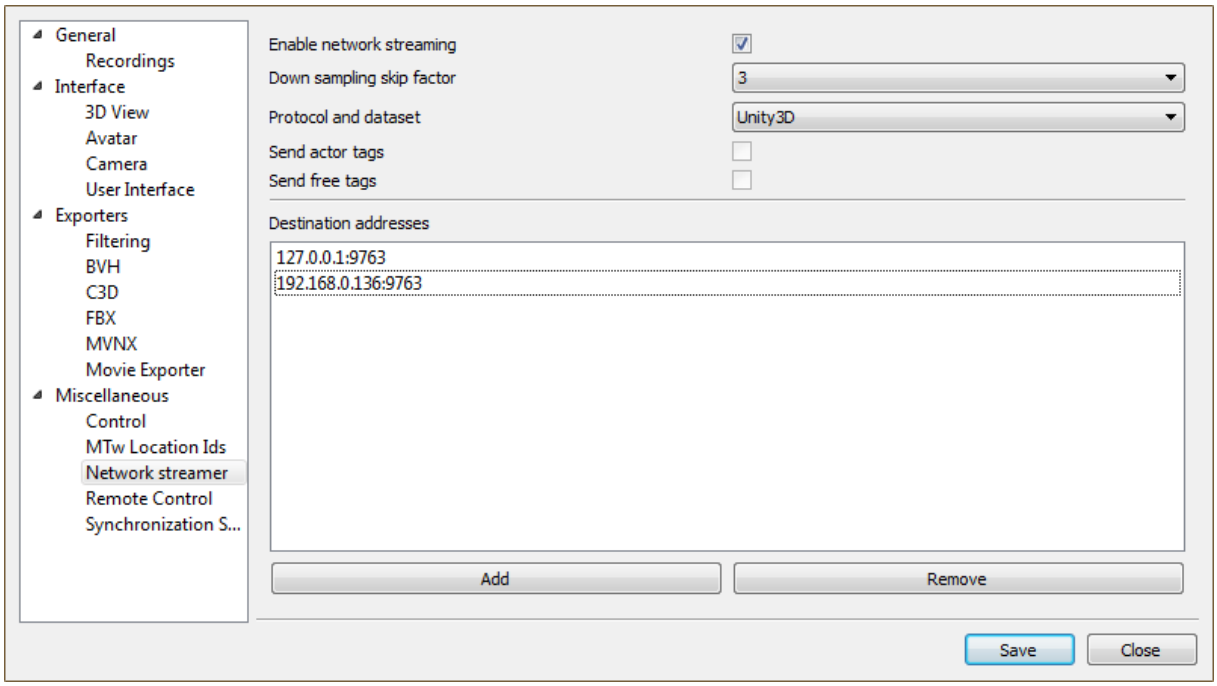
1.2 Streaming to Unity device

To get optimal results, the streaming settings from MVN Studio to Unity have to be set correctly. It is recommended to set MVN Studio to stream 30 fps. This can be done by using the 'Down sampling skip factor'. Motion data sent by MVN Studio is sent in real-time to Unity time wise. However both MVN Studio and Unity are operating on a non-real-time operating system, so timing cannot be guaranteed in the Viewer. Additionally depending on system resources Unity is not able to process all incoming data. Timing of the incoming frames is done on the basis of best effort by Unity.

2. Getting Started

2.1 Setting up the MVN device

1. Open MVN Studio
2. Open an MVN file, MVNX file or use the MVN suit in live setup
3. Go to: Options → Preferences → Miscellaneous → Network Streamer

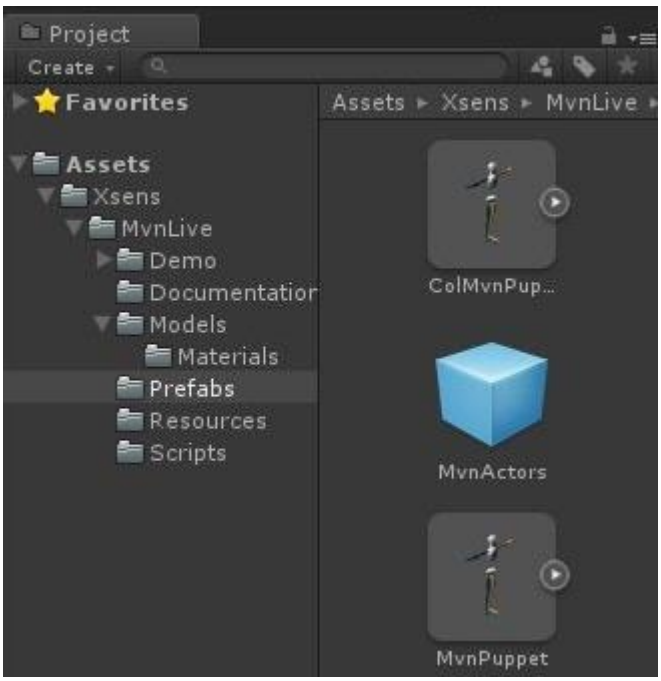


4. Make sure you check 'Enable network streaming'
5. When recording in 120Hz, set 'Down sampling skip factor' to 3. This will down sample the frame rate to the natively supported 30 fps for Unity
6. Set "Protocol and dataset" to Unity3D
7. Input an IP-address of the client PC (the PC where Unity is running). If it is the same PC as where MVN Studio is running, use either 'localhost' or '127.0.0.1'

   NOTE: To test if the streaming is set-up properly, you can simply start the 'Demo.unity' file. You can find this in the project tab under the folder 'Assets → Xsens → MvnLive → Demo'. Make sure you have a file running in MVN Studio.
   Once you start up the Unity scene, you should see two characters move. One uses an FBX file, and the second one should receive data from MVN Studio.

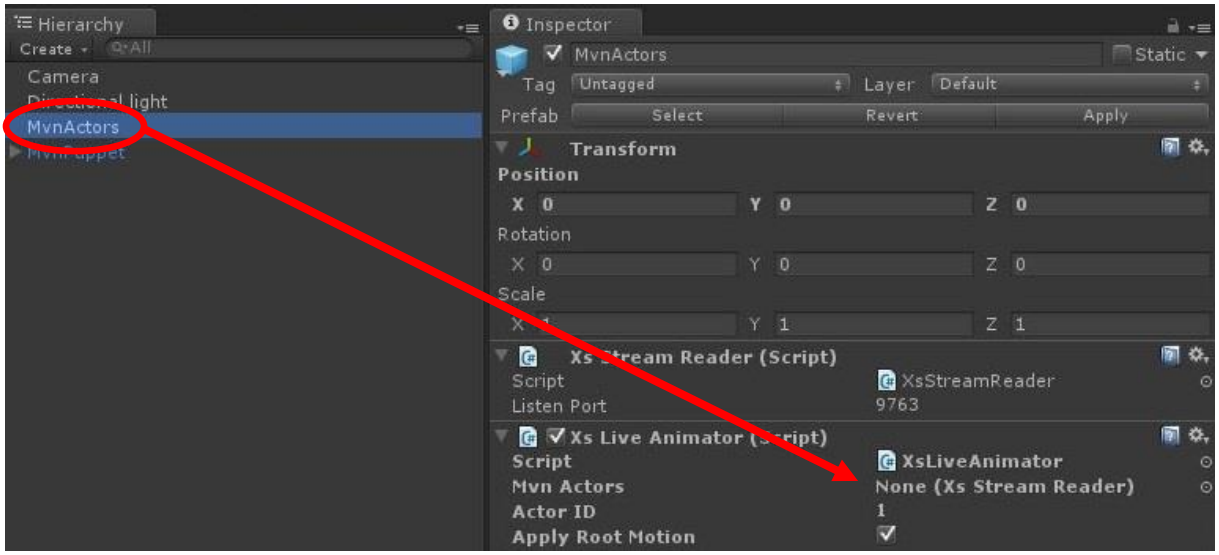
2.2 *Setting up Unity*

1. Open Unity
2. In the 'Project' tab go to: Assets → Xsens →MVNLive →Prefabs

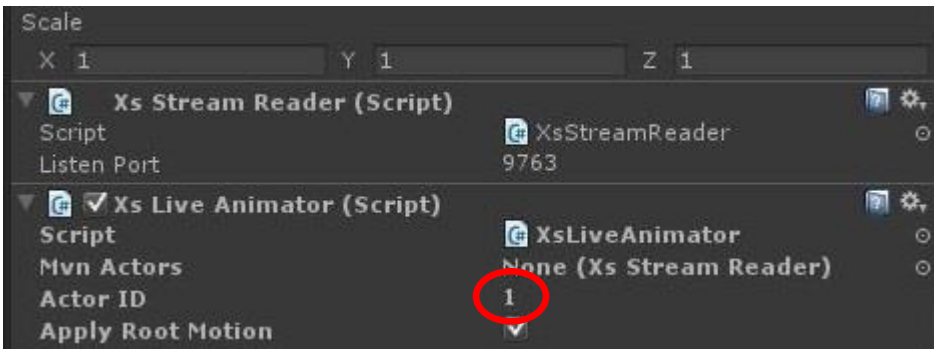


3. Drag the 'ColMvnPuppet' into the hierarchy
4. Drag the 'MvnActors' into the hierarchy
5. Select 'ColMvnPuppet' in the hierarchy
6. In the Inspector tab, add the 'Xs Live Animator' by going to: Add Component → Scripts → xsens

7. Then, while still having selected ‘CollMvnPuppet’. Drag ‘MvnActors’ from the Hierarchy into ‘Mvn Actors’



You should now able to run the game, and stream live into Unity.
The Unity plug-in supports more than one character at the same time.
To do this, copy/paste the ‘ColMvnPuppet’ in the hierarchy.
You can also chance the Actor ID for every ‘ColMvnPuppet’ to the desired MVN Studio stream ID (1,2,3 or 4).



2.3 Customer Support

Xsens Technologies B.V. is glad to help you with any questions you may have about the MVN Maya live plug-in or about the use of the technology for your application. Please contact Xsens Customer Support:

- ➔ by e-mail: www.xsens.com/support
- ➔ telephone: Xsens HQ +31 88 97367 00 / Xsens US office 310-481-1800

To be able to help you, please mention the **8-digit number** on the Xsens Sticker, you can find this between the latches of the Suitcase.