

## | DTRACK

### Standard Interfaces

To be able to use the ART tracking system in VR or AR applications, one needs an interface. Lots of VR systems have developed a direct interface using the SDK coming from ART.

ART products	Unreal Engine	Unity	trackd™	VRPN	VR Juggler	Open Tracker
Standard Targets (6DOF)	✓	✓	✓	✓	✓	✓
Flystick2/3	✓	✓	✓	✓	✓	✓
Measurement Tool	○	○	✓	○	✓	○
3DOF Markers	○	○	○	✓	○	○
Fingertracking	planned	✓	○	○	○	○

#### Unreal Engine

Unreal Engine is a game engine developed by Epic Games, first showcased in the 1998 first-person shooter game Unreal. With its code written in C++, the Unreal Engine features a high degree of portability and is a tool used by many game developers today, with it being source-available. The most recent version is Unreal Engine 4, which was released in 2014. A developers version of the ART Unreal Plugin is available on the [ART GitHub page](#).

#### Unity

Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Inc.'s Worldwide Developers Conference as a Mac OS X-exclusive game engine. As of 2018, the engine had been extended to support more than 25 platforms. The engine can be used to create three-dimensional, two-dimensional, virtual reality, and augmented reality games, as well as simulations and other experiences. The source code of the ART Unity Plugin as well as a precompiled Unity Package are available on the [ART GitHub page](#).

#### trackd™

trackd, provided by Mechdyne, is a small "daemon" application, that acts like a standard interface for tracking and input devices. A variety of VR and motion tracking software applications already support trackd. It is available for several operating systems (e.g. Linux, Windows). With trackd you are able to use any ART target, Flystick or our Measurement Tool. There is no interface for the ART Fingertracking.

#### VRPN (Virtual-Reality Peripheral Network)

VRPN is a set of classes within a library, provided by the NIH National Research Resource in Molecular Graphics and Microscopy at the University of North Carolina at Chapel Hill. It can be implemented into application programs to get a network-transparent interface to a set of trackers and other devices. As with trackd, you can use any target or Flystick, but no Fingertracking.

#### VR Juggler

VR Juggler (Open Source Virtual Reality Tools) is a research project headed by Dr. Carolina Cruz-Neira at Iowa State University's Virtual Reality Applications Center. It provides Virtual Reality software developers with a suite of application programming interfaces (APIs) including display surfaces, object tracking, selection and navigation, graphics rendering engines and graphical user interfaces. The VR Juggler includes the Gadgeteer module, which provides the support for ART tracking.

## Open Tracker

OpenTracker was developed by a group at the Vienna University of Technology as part of the augmented reality software Studierstube. It provides an open software architecture (C++ class library) based on a highly modular design and a configuration syntax based on XML.

## Supported Software

This section lists the real-time 3D application software and middleware applications that are compatible with ART motion tracking systems.

If you would like your application to be added please contact [marketing@ar-tracking.de](mailto:marketing@ar-tracking.de)

Software	Company	Connection via	Support for	
			Fingertracking	ART Human
3DVIA Studio	Dassault Systèmes	VRPN	○	✓
Acuitiv	Acuitiv	VR Juggler	○	○
alaska / Dynamicus	IFM Chemnitz	direct	○	○
AMIRA®	Visage Imaging GmbH	trackd™	○	○
Avango	Fraunhofer IAIS	VRPN	○	○
Avizo®	Visualization Sciences Group	trackd™	○	○
AVS Express	Advanced Visual Systems	trackd™	○	○
Blender	Stichting Blender Foundation	VRPN	○	○
Cadmium	Softvise	direct	○	○
Catia	Dassault Systèmes	trackd™, direct	○	○
CATIA Drivers for Visualisation and Interaction	Mechdyne	trackd™	○	○
Cave5D	Freeware	trackd™	○	○
CAVELib™	Mechdyne	trackd™	○	○
COVISE/OpenCOVER	HLRS	trackd™, direct	○	○
DART	Georgia Inst. of Technology	VRPN	○	○
Delmia	Dassault Systèmes	trackd™, direct	○	○
DIVE	SICS	trackd™, VRPN	○	○
DIVERSE	GPL / OpenTech Inc.	trackd™, VRPN	○	○
DIVISION MockUp	PTC	trackd™	○	○
ema	imk automotive GmbH	export/import of BVH	○	via BVH
EnSight Gold	CEI Munich Office	trackd™	○	○
EON Icube 8	EON Reality	trackd™, direct	✓	○
FlowVR	Freeware	VRPN	○	○
FreeVR	FreeVR HomePage (Freeware)	VRPN	○	○
Go2VR	VSP-Technology	trackd™	○	○
HIM	Optis	VRPN	○	○
Human Solutions	RAMSIS	direct	○	✓
IC.IDO	ESI Group	VRPN	✓	○

# Interfaces and compatible Software

Software	Company	Connection via	Support for	
			Fingertracking	ART Human
Inside Reality	Schlumberger	trackd™	○	○
IPSI Server	Haption	trackd™, direct	✓	○
IPSI scripting	Haption	trackd™, direct	○	○
Lifecycle Visualisation Concept	Siemens PLM Software	trackd™, VRPN	○	○
Lightning	Fraunhofer IAO	VRPN, direct	○	○
LS-PrePost-VR	LSTC (Livermore Software Technology Corp.) via Inv3rsion	VR Juggler	○	○
Maverik	Freeware	VRPN	○	○
MiddleVR, Improov <sup>3</sup>	MiddleVR	VRPN	○	○
Ogre3D	Freeware	VRPN	○	○
Open Inventor®	Visualization Sciences Group	trackd™	○	○
OpenScenegrph	OpenSceneGraph (Freeware)	VRPN	○	○
OpenVIBE	Inria	VRPN	○	○
Opticore	Autodesk	trackd™	○	○
Panda3D	Panda3D Development Team (Freeware)	VRPN	○	○
Petrel	Schlumberger	trackd™	○	○
PiXYZ Review	PiXYZ Software	direct	○	○
Quest3D	Quest3D	direct	○	○
RapidVRM	Visual Advantage	trackd™	○	○
3DEXCITE DeltaGen	3DEXCITE	trackd™	✓	○
SARA	SARA	trackd™	○	○
Showcase®	Autodesk®	trackd™	○	○
Studierstube1	TU Wien	direct	○	○
Syzgy	University of Illinois at Urbana-Champaign	trackd™, VRPN	○	○
Teamcenter Visualisation with Concept Showroom	Siemens PLM Software	trackd™, VRPN	○	○
Tecnomatix Jack and Process Simulate Human	Siemens PLM Software	direct	✓	✓
TechViz XL	TechViz	direct	✓	✓
THIEA-RT	Optis	trackd™, VRPN, VR Juggler, direct	○	○
Unifeye SDK	metaio	direct	○	○
Unigine	Unigine Corporation	direct	○	○
Vega Prime Immersive	Presagis	trackd™	○	○
vGeo	Mechdyne	trackd™	○	○
Virtools Dev	Dassault Systèmes	VRPN	○	○
Virtual Sight	Lumiscaphe	VRPN	○	○
Vizard	WorldViz	VRPN	○	○

Software	Company	Connection via	Support for	
			Fingertracking	ART Human
VMD (Visual Molecular Dynamics)	University of Illinois at Urbana-Champaign	VRPN	○	○
VMP	University of Illinois at Urbana-Champaign	VRPN	○	○
VR Concept	VR Concept	VRPN	✓	○
VR4MAX	Tree C Technology	trackd™	○	○
VRFx	Fraunhofer IAO	VRPN, direct	○	○
VRED	Autodesk®	VRPN	✓*	○
VR Juggler	Iowa State University	trackd™, VRPN, direct	○	○
VRscape	SOUVR INTERNATIONAL	trackd™	○	○
World Toolkit IDO	Sense8	trackd™	○	○

\* Fingertracking-Plugin available by Bertrandt.

Please note that this list makes no claim to be complete. E.g. when using trackd™ or VRPN there might be interfaces to software products which we aren't aware of at the moment.

If you can provide any feedback regarding interfaces please feel free to [contact](#) us! Thank you!

## | CAPTA

### Tracking without tagging the objects

CAPTA technology is a markerless deep-learning based detection and robust tracking of objects in camera images, for recognition and tracking of workpieces or complete vehicle bodies, support at assembly maintenance tasks and tracking of products during Marketing Demonstrations.  
Compatible with Unity

CAPTA supports software and standard interfaces able to read 6DOF data via Ethernet and interpret them. It uses the same Format as our DTRACK Software.  
In detail, CAPTA uses ethernet (UDP/IP datagrams) to send data to other applications.  
Please [contact](#) ART for more information.

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## | VERPOSE

VERPOSE® is our **camera-based localization system** for hand-held assembly tools.  
ART provides a VERPOSE®-specific interface, the **VERPOSE®-API**. It is a TCP/IP-based interface for direct communication with VERPOSE® and can be obtained free of charge from ART.

Several communications have been realized based on the API, e.g.

- APEX Cleco
- Atlas Copco
- Marco SDOK
- Remes ASCOT
- Ubisense SmartSpace

VERPOSE® supports the following **industrial protocols** via gateway modules (as slave to slave connection):

- Modbus-TCP
- PROFINET IRT
- Ethernet/IP
- POWERLINK
- EtherCAT
- Sercos III
- PROFIBUS
- DeviceNet
- CANopen
- Modbus RTU
- Serial
- DMX

Please [contact](#) ART for more information.