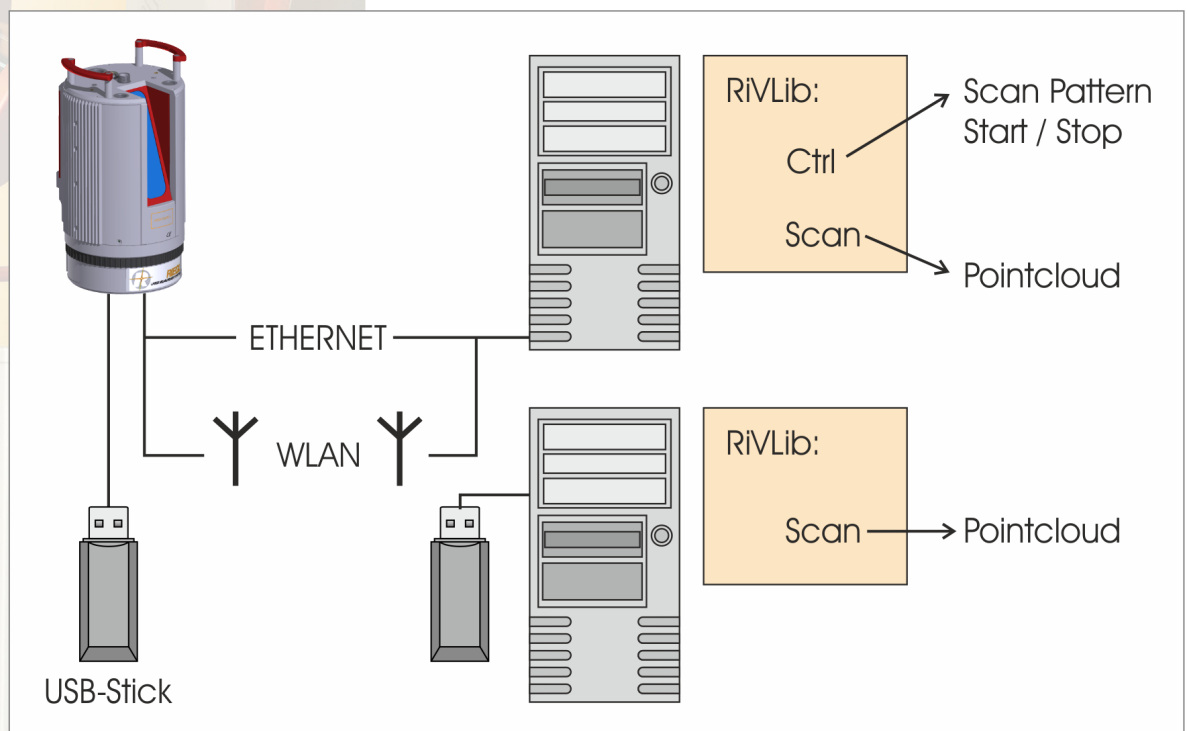# RiVLib

## to *RIEGL's* V-Line® Scanner Series

- *Multi platform: Windows®, Linux*

- *Multi compiler: Microsoft® VC, gcc*

- *Multiple interfaces: C++ and language neutral*

- *Fast and flexible*

**RiVLib is the well documented platform independent software library for control of and data retrieval from *RIEGL's* V-Line scanners. *RIEGL* V-Line scanners stream measurement data utilizing the versatile RXP format. RiVlib facilitates easy and full transparent access to this compressible data stream.**

RiVLib is *RIEGL's* libary for developing custom software to acquire and process *RIEGL* RXP data streams.



visit our website www.riegl.com

# RIEGL®
## LASER MEASUREMENT SYSTEMS

In order to assist the developer of software for utilizing V-Line instruments within, e.g., surveying systems, RiVLib provides the following key features:

- extracting the 3D content in the data stream, i.e., the point cloud in the scanner's coordinate system with the additional attributes, e.g., reflectance, for each point and providing these data in well-specified SI-compatible units at easy-to-use interfaces
- decoding the binary data stream and providing events with the occurrence of packets in the data stream
- a straightforward mechanism to connect to V-Line instrument's data ports via various media (Ethernet, WLAN, stored files)
- special provision to operate reliably even over weak links such as WLAN
- an easy-to-use interface to connect online to the command and configuration interface of the V-Line instrument
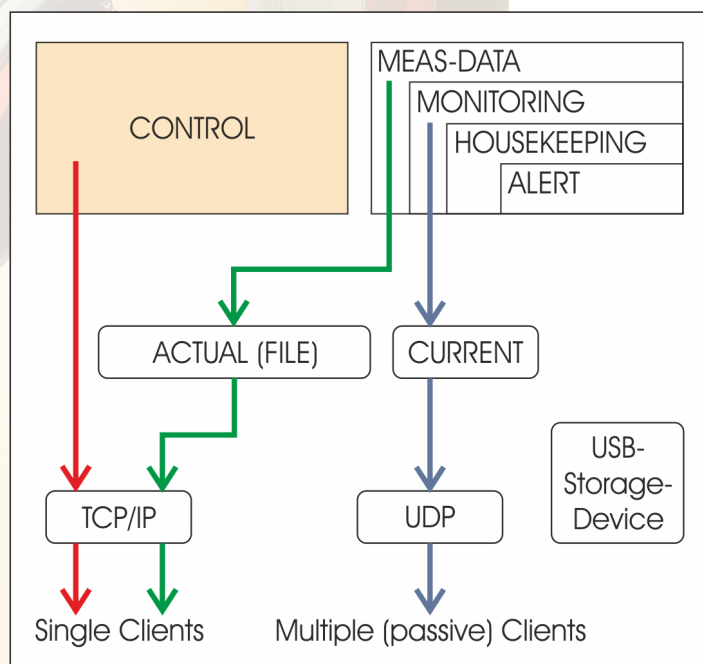
*RIEGL* V-Line scanners are equipped with a versatile data access system. The data connection can be made to the command and configuration interface (CONTROL), to the main measurement data stream (MEAS DATA), and / or to the so-called monitoring data stream (MONITORING), which consists only of a fraction of the measurement data and is intended to be used for monitoring the data acquisition by an operator in real time.

A stream, corresponding to a scan, may be backed up to a permanent storage device within the scanner unit. If this is the case such a stream may be accessed as an **„ACTUAL" stream** or later by an unique filename. Backing up a stream although data is transferred real-time to a client computer at the same time allows robust operation in face of weak connections as, e.g., is the case for WLAN in electrically noisy environments.
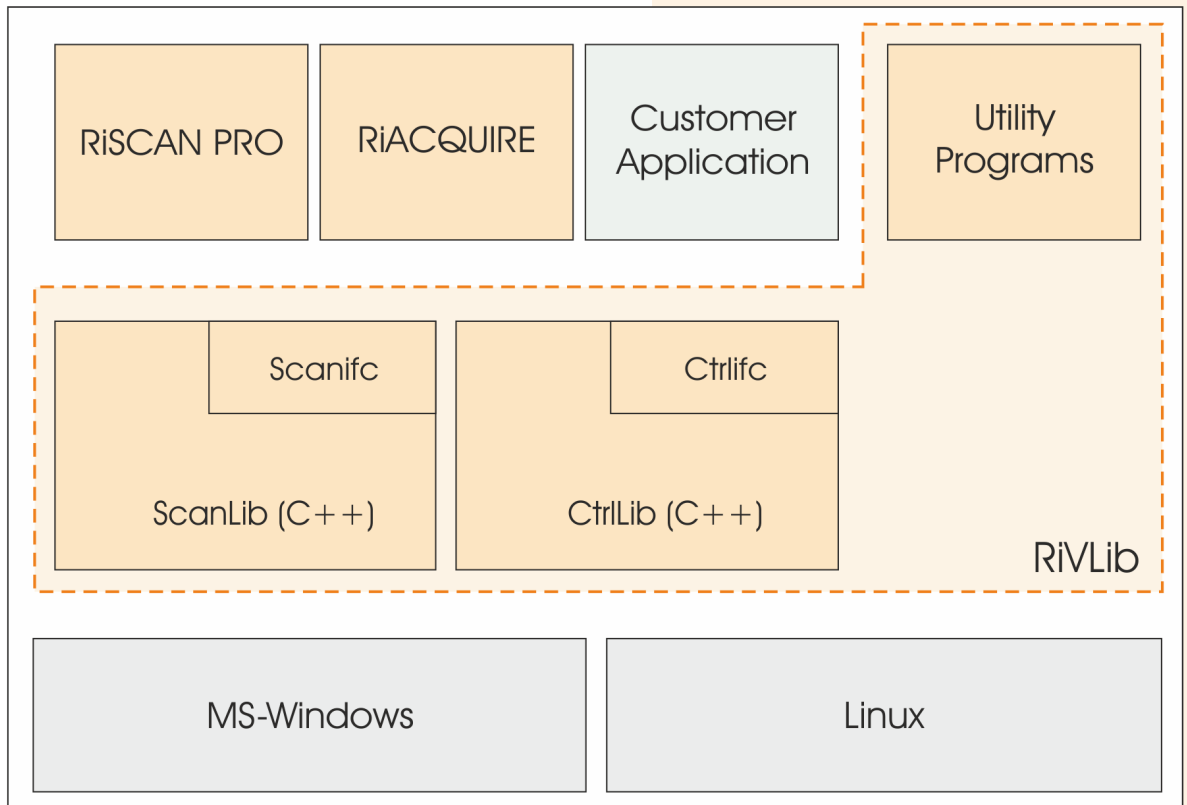
A **„CURRENT" stream** on the other hand is appropriate where small delay is essential which is typical for real time applications or acquisition of very long and large data sets in mobile and airborne systems.

At the network layer TCP/IP as well as UDP protocols are supported.

*Data Sheet*

**The graphic shows some typical access paths:**

1) The red path is a bi-directional connection to the command and configuration interface.

2) The blue path demonstrates how multiple clients (listening only) could get the data in a bandwidth efficient manner.

3) The green path is the typical connection of a client that retrieves the data from a single scan, e.g., in terrestrial laser scanning with the *RIEGL* VZ-400.

All possible access paths are supported by RiVLib.

| RiSCAN PRO | RiACQUIRE | Customer Application | | Utility Programs |
|---|---|---|---|---|
| Scanifc | | Ctrlifc | | |
| ScanLib (C++) | | CtrlLib (C++) | | RiVLib |
| MS-Windows | | Linux | | |

From a programmer's perspective RiVLib is a library that sits between application code and the operating system. Linux as well as Windows® are supported.

Both parts of the library, the control and measurement library, have a dual interface: The main interface is a tightly coupled object oriented C++ interface. For language neutral use of the RiVLib also a C-style shared library interface is available. The top row in the graphic lists typical applications making use of the RiVLib. The dashed line encloses all parts that belong to RiVLib.

The library is accompanied with an extensive documentation and commented example code.

It can be used with current Microsoft® C++ and mingw compilers on Windows®. Several versions of gcc are supported on Linux.

The library comes with some additional utility programs to manipulate RXP data streams, i.e., to cut out some smaller segments, and a file transfer utility that is able to work reliably even over a weak WLAN link.

**Supported Compilers:**
- Windows 32/64 bit:
  Microsoft® Visual C++ and Gnu Mingw
- Linux 32/64 bit: Gnu Gcc

Check download area for current list.

Special builds might be available on request.
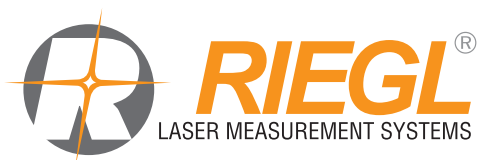
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