
Reference Manual



VPstudio
VPstudio mono
VPlite

VPraster
VPraster edit



VPmap pro
VPmap



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SECTION 1

INTRODUCTION

Welcome

Congratulations to your purchase of a **VP software** product from **softelec**, the leading specialist in hybrid (raster and vector) editing, color management, and raster-to-vector conversion! For a better orientation you will find your specific VP software product listed below. It is part of either one of the two major product lines:

VPHybridCAD V16: VPstudio, VPstudio mono, VPlite, VPraster, VPraster edit

VPmap Series V9: VPmap pro, VPmap

For simplification the term **VP software** is used in this manual when general references apply to any product of both product lines.

Since its introduction in 1990, VP software products have been constantly improved on quality and productivity. New algorithms and programming techniques have resulted in extraordinary quality improvements, outstanding features, unique functions, needle pegging conversion speeds, and convincing user friendliness. softelec's own VP software technology guarantees that you are obtaining the finest in professional products for your scanning, archiving, raster and vector editing, or conversion tasks for all applications in CAD/CAM, AEC, FM, or GIS.

The latest VP software versions again enclose significant improvements and enhancements. These are designed to further extend application ranges and productivity in your CAD, GIS, or archiving system environment. We hope to meet your requirements in the best way, and we do wish you a successful work with your VP software!

What are VP software products and who needs them?

The importance of raster data processing has seen notable growth, especially in the field of CAD where legacy information, such as "old" drawings, manually created plan designs, and other technical documents prevail in b/w paper (copies, blueprints, transparencies) or gray scale and color images (photographs, films, color prints). To redrawing those manually in a CAD program (using CAD functions or a digitizer) is very time consuming and, in most cases, inaccurate and cost intensive. To overcome these drawbacks, b/w and color scanners for small and large formats are used to generate raster data (digital photographs) from those documents which then can be easily edited or if necessary, converted to vector entities for further use in CAD applications.

VP software represents a number of individual software products with advanced editing and conversion capabilities for raster and vector (= hybrid) data. **VPstudio** and **VPmap pro**, softelec's premier products, contain the highest and most sophisticated hybrid editing capabilities for b/w, gray scale, and color raster data together with automatic or interactive raster-to-vector conversion functions. Often, all necessary drawing/document modifications can be completely executed with a VP software product, without the need to load the file into an additional GIS software. The results can be saved to different hybrid formats or exported to CAD or GIS compatible formats, such as DXF, DWG, DGN, ESRI SHP or MapInfo MIF.

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Anyone with the need to digitally process technical paper drawings, colored images, maps, plans or sketches will inevitably face this question: "How do I capture legacy drawings for use in my system in a manner that saves time and money?" At softelec, we firmly believe that VP software products clearly respond to this question in many positive ways, and that they offer an optimum solution for any relevant application, such as

- Mechanical Construction (MCAD)
- Civil Engineering, Facility Management, Architecture (AEC, FM)
- Plant Design (Piping)
- Energy Supplies (ECAD)
- Infrastructure planning
- GIS applications and cartography
- Land Survey engineering and ground map documents
- Any application for extracting geographical information from scanned maps and other documents.

VP Software Highlights

VPHybridCAD and **VPmap Series** products contain outstanding, often unique features for advanced hybrid processing. These features can guarantee for highest possible productivity. This is a selection:

- Direct Large Format and TWAIN scanner interface
- MDI (Multi Document Interface) for raster images and vector data
- Two installation platforms: Windows and AutoCAD / BricsCAD / ZWCAD,
32-bit and 64-bit mode
- Unique multi page TIF processing
- No real size limitation (64,000 pixel) for raster image import
- Automatic raster image clean up for b/w and color
- Multiple rubber-sheeting/format calibration modes
- Automatic and semi-automatic color reduction
- Dimensioning for raster and vector data (Windows)
- Interactive and automatic vectorization
- Ortho-equalization of geometry
- Symbol library manager via "network clipboard"
- Symbol Search (Raster and Vector)
- Quick Symbol Recognition
- Table and drawing header recognition and clean up
- Multiple CAD functions (Windows)
- Full compatible hybrid file format for AutoCAD: RasterDWG
- Command interface via keyboard
- Application integration via DDE/OLE
- Customization of functions, menus, and toolbars

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Additional Functions of VPmap Series

VPmap Series products also contain additional functions which support hybrid processing applications especially for maps and geodata in the field of GIS:

- Expanded raster image import (incl. Erdas, ER Mapper, Landsat)
- Support of about 2.000 pre-defined Coordinate Systems/Projections and re-projections
- Simple placing and position adjustment of raster images
- GeoTIFF Import/Export
- ESRI (.shp) and MapInfo (.mif) import/export
- Multiple rubber-sheeting/calibration modes
- Project and attribute management
- Attribute query
- Intelligent polygon/polyline creation
- Dashed polyline tracing
- Automatic attribute assignment
- Automatic transformation of text into attributes
- Polygon ortho-equalization and overlap correction
- Automatic correction/transformation of polylines and polygons
- Point entity insertion from library
- Independence from a GIS platform

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Concept of this Manual

This manual has been organized to help you to quickly find operation terms, commands, and description of functions and to supply you with brief, but sufficient explanations. The manual applies to the following VP products:

VPHybridCAD V16: VPstudio, VPstudio mono, VPlite, VPraster, VPraster edit
VPmap Series V9: VPmap pro, VPmap

The icon at the top on each page indicates the product(s) to which the information and/or commands apply. If specific commands on a page are limited to other products or product groups this is marked with a corresponding icon at the corresponding command.

Please, see the product listings on the upper right on each page (see above). When **filled**, the marks in front of a product name indicate the availability of the described function for a specific product. When **not filled**, the described function is not available in the respective product. The following icon indicates that the described functions are only valid for **VPmap pro** and **VPmap**:

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<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Great efforts have been made to define each function and each setting of a parameter only once in detail. Therefore, an alphabetic index provides a quick means of finding these descriptions.

Keys and key combinations are represented by [] enclosing the keys' designation. For example, the "Enter" or "Return" key is shown as **[Enter]** whereas a key combination (short-cut) opens as **[Ctrl + C]**.

Functions that can be mouse-clicked for activation/deactivation in a check box are represented as **{on/off}**.

Command line commands are indicated with "CMD:" followed by the command term for all Windows installed products and most commands with CAD installations. Standard CAD commands are used instead, if AutoCAD, BricsCAD, or ZWCAD provide an adequate command. Then, the CAD commands are listed below with the prefix "CAD:". In such cases, the indicated icons are only available under Windows. Please see the following examples:

Command is available for both Windows and CAD installations:

CMD: **VPRTTEXT** ► Dialog

Two different commands for Windows and CAD installations:

CMD: **VPDRAWPOLY** <X1>, <Y1>, <X2>, <Y2> ...
 CAD: **_pline**

The given **value ranges** do not necessarily define an internal limitation, but specify a meaningful range - be aware that using values outside of the "normal" range can cause unexpected results. **Default values** represent values either set up during installation or values to be used, e.g. when parameter values are reset.

Conclusion

This manual will familiarize you with all the functions of your VP software. It is meant to be both: a source of reference and a guideline to the latest hybrid (raster + vector) processing technology. The most expedient way to learn how to use your VP software product professionally and effectively is to start with the Tutorial and to follow the applicable lesson sequence. Once completed, you will have a good command on your VP software product to significantly increase your raster productivity.

Enjoy working with your VP software!

As a reminder, please register your VP software product with softelec (by mail, fax, or online) within 30 days after installation to receive an unlimited license access.

Visit our website at <http://www.softelec.com> for the latest product information, for technical support, for available updates, upgrades, and service packs.

SECTION 2

INSTALLATION

Introduction

VP software requires for operation Microsoft **Windows 7 or higher**. Depending on the configuration of your computer network you may install the software using local licensing or network licensing.

The purchased VP software product is delivered with a 30 days time limited operation license. The user is required to register the software within that time frame with softelec using either the online registration accessible from within the software, or sending the completed registration form to softelec by mail or fax. Softelec will then return a code to the user which extends the license for unlimited use.

Software License Control (Hardlock)

Any VP software **Full Version** product requires a hardlock (dongle) controlling the product license. Without a proper installed hardlock any product will only operate in the **Demo Mode** (no hardlock for the license control required).

The hardlock may contain one or more product licenses. Regardless of the installation mode and the number of licenses controlled by the hardlock there are two methods of operation:

1. **Local Licensing:** you need to attach the USB hardlock to one of the USB ports of the computer where the VP software is installed. Typically, this method of operation is used if the hardlock contains a single license only. Then, for every additional VP software installation an additional single license hardlock is required.
2. **Network Licensing:** this method of operation is preferable if two or more VP software licenses are to be controlled by one hardlock, but may also be used for a single license ("floating" license), where you can access the VP software license on any network computer, but only operate one license at a time. You need to attach the hardlock to a workstation serving as "**VP network server**" or "dongle server" (usually your network server) executing the **VPLicenseManager** so that the license(s) is/are accessible by other workstations.



The **VPLicenseManager** has to be installed on the workgroup server and can only operate under **Windows XP or higher**.

Local Licensing does not require the installation of the **VPLicenseManager**.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Hardlock Driver

The workstation or server controlling the hardlock needs a system driver for proper operation. This driver is provided with your package and is installed together with the VP software. You may also install it manually by following the instructions found in the file **README.TXT** on the CD.



In order to install the hardlock driver during the standard installation or manually, you need **administrative rights**.



The installation routine will **not** install the hardlock driver(s) if the selected software is installed as a **Demo Version!** If, at a later state, you want to use the software as a full version (together with the purchased hardlock), you need to manually install the hardlock driver.

Attaching the Hardlock (Dongle)

The driver software will be installed automatically with the VP software program (full version). If required, it can also be installed separately later. Installation files can be found on the VP software CD or are available at www.softelec.com – downloads – utilities/drivers.



Attach the hardlock only **after** a successful software installation to one of your computer's/server's USB-Ports.

Package Contents

Your VP software package contains the following:

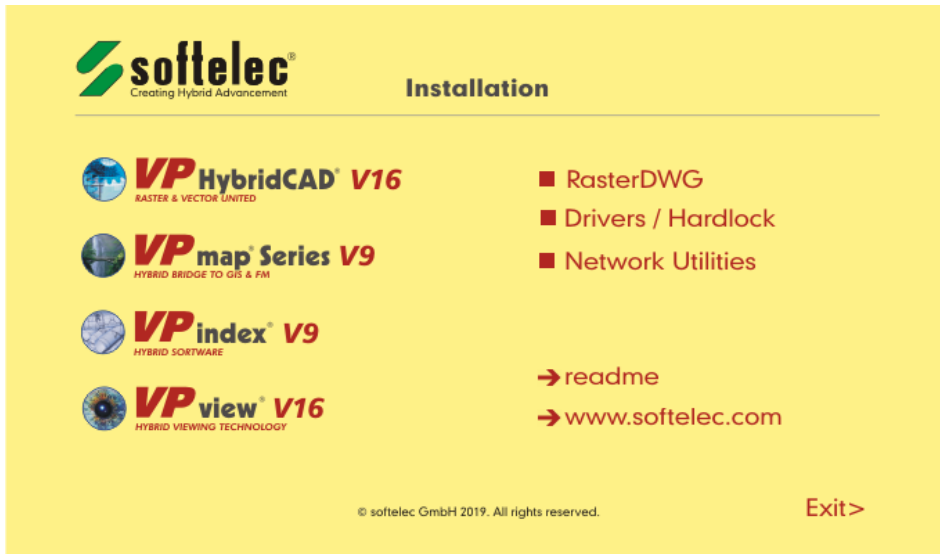
- 1 **VP Software** CD
- 1 Hardlock (dongle)
- 1 Registration form

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Installing VP Software

General

The install program **SETUP_VP.EXE** guides you through each step to successfully install and configure the software of your choice and the required hardlock driver on your computer. If your CD function **AutoRun** is enabled, the initial screen will pop up automatically upon insertion of the VP software CD offering you several choices. Select **VPHybridCAD** or **VPmap Series** and follow the advice:



The required hardlock drivers (Sentinel) will be installed or updated automatically if a VP software **Full Version** product is installed.

The installation setup allows you to specify several options. These include the target location and the required components of the VP software.

Prior to starting the setup routine please terminate any running application and read the file **README.TXT** if available on the VP software CD.



Administrator rights are necessary to install the hardlock driver.

After a successful installation of the software or the hardlock driver it is often necessary to reboot the computer in order to allow the operating system to update the DLLs. A dialog box will appear, asking the user to restart the computer now or at a later stage.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Performing the Installation

The setup starts automatically after inserting the CD into the CD-ROM drive (**AutoRun**). Only if your Operating System (OS) does not support this feature or **AutoRun** is disabled you have to start the setup program **SETUP_VP.EXE** manually from the root directory of the CD.

In the initial setup window click the item "**VPHybridCAD**" or "**VPmap Series**", select "**Full Version**" or "**Demo Version**" (as desired) and select the desired program language from the appearing dialog. In the sequel you are guided through the setup dialogs allowing user defined settings. We recommend to choose "**typical**" as the setup type.

On a 64-bit operating system another selection shows up to choose between 32-bit and 64-bit program installation.

Local Licensing

During setup you will be asked whether your hardlock resides locally or on the VP network server. Choose "**Local**".

Network Licensing

If you want to operate the software on a network (you have either multiple licenses purchased or you want to use a single license floating) you need to install your hardlock on the server. Therefore, choose "**Network Server**". The next dialog prompts you for the name of the server bearing the hardlock ("dongle server").



Enter the name, not the IP-address of the server!

There are different ways to specify the server:

COMPUTERNAME

Name of the computer as entered during the installation of the Windows OS. Leading backslashes ("\") are not required!

COMPUTERNAME:192.168.0.1

The IP-Address can be enter after the computer name separated by ':'. This is useful in larger networks and can speed up the rooting to the server and thus the license.

COMPUTERNAME:COMPUTERNAME.DOMAINNAME

In some 'heterogeneous' networks it might be necessary to use this combination to clearly resolve the server name (e.g. DHCP).

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

When working with multiple dongles on different servers please use the following syntax:

COMPUTERNAME1; COMPUTERNAME2

The computer names of the servers must be separated by semicolon.

If you don't know the name of the "dongle server" (= "VP network server") you may leave the entry empty and proceed with the installation. You may change the dongle server name in the VP software (Options->Settings->License) later.

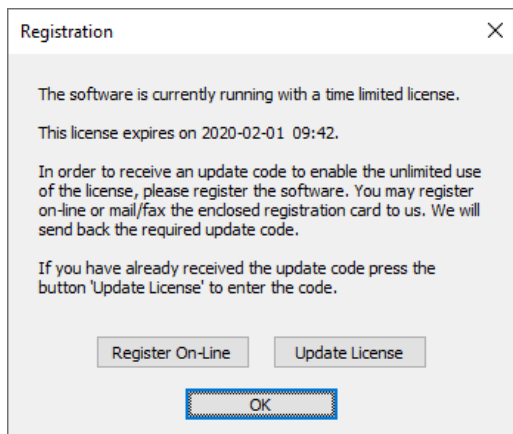


In order to use Network Licensing, the **VPLicenseManager** (see below), the hardlock driver, and the hardlock (dongle) must be installed on the same computer (server).

First Start after Installation and Registration

Unless you have purchased special VP software licenses such as Multi Licenses or Educational Licenses, which require a pre-registration, your software operates on a 30 days time limit allowing for execution of the required registration with softelec. At any start of the VP software a dialog opens remembering you to register and displaying the expiration date of the license. After the expiration date the software will only run in demo mode, unless the code for unlimited use has been entered. This code will be send to you as soon as you have registered with softelec.

You can register online from within the VP software (press button "Register On-line" in the dialog box or select menu **Help ► Register VPxx on the Internet**) or fill out the attached registration form **completely** and **legibly** and send or fax it back to **softelec**. After checking the registration contents softelec returns a code to be entered with the next software start.



You will receive technical support and update/upgrade notices from softelec only if you have properly registered your VP software. Registration of VP software products with your dealer does not constitute a proper registration.



All user data received will only be used for internal expenditure within the softelec sales and support cycle and will not passed over to third parties!

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Uninstalling

To remove a VP software product from your computer click on the icon **Uninstall** and follow the instructions.

The hardlock driver(s) will **NOT** be removed. If the driver is not required by any other program, you can uninstall those using "**Add/Remove Programs**" from the **Control Panel**.

Updating / Upgrading / Service Pack

Software **upgrades** (to a higher VP software product level) or **updates** (to a new release of the same VP software product) may require a code that is issued to you upon purchase. After installing the upgrade or update and starting it for the first time you will be asked to enter the code. With a successful entry the code can be discarded.



For updating a **VP network license hardlock** (the lock is attached to the VP network server) use the program **UPDATELOCK.EXE** residing in the CD directory **VPHardlock** for entering the update code. For more information please read the text file **ReadMe.TXT** in the root directory of the CD.

Service packs are released from time to time for bug fixes and smaller software improvements. They can be downloaded from our website and are usually self-installing.

You may install and use the new VP software release together with a previous release although this is not recommended. **However, do not install the new version into the same directory!**

System Requirements

Proper operation requires a specific configuration of hardware and software to guarantee overall functionality. The fastest CPU in your PC is the most desirable! The software requires at least 4 GB of RAM, but this is not recommended and today's PCs often have higher memory installations. Drawing formats of DIN A0 (E size) and larger, gray scale or color images of any size require a minimum of 8 GB. More is recommended for large size color images. File size and entity contents of a drawing define the actual amount of RAM required.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Installing the VPLicenseManager

The **VPLicenseManager** needs to be installed only if you have a computer network and the hardlock is attached to a remote computer ("dongle server"). This software controls and manages the VP software licenses in the network.

Requirements

The **VPLicenseManager** may be installed as a **service** only on computers (server or workstation) operating under Windows XP or higher.



As a maximum number, **ten concurrent users** are allowed to connect to a license server running with Windows XP prof.! This is a restriction of the operating system, not of the VPLicenseManager. More users can connect using a newer version of Windows or a server operating system like Windows Server 2003.

The software clients may run under Windows 7 or higher. It is necessary that the clients have access to the "dongle server" (an account must exist for each user). We strongly recommend installing the **VPLicenseManager** on the Domain Controller Server!

An alternative solution is to create a share with a default user name and a respective password. Every user that needs to access the "dongle server" has to connect this share with this specific name and the specific password. This can be done by either using the Windows Explorer, with a special logon script, or by using the **VPNetManager**.

Installation



For the following steps you have to be logged on to the dongle server as "**Administrator**"!



Attach the hardlock (dongle) only **after** a successful software installation.

1. Install the **VPLicenseManager** software either
 - by choosing **Network / Hardlock - VPLicenseManager** in the installation's main window, or
 - by running **VPLicenseManagerSetup.exe** from the **VPLicenseManager** folder on the VP software CD.
2. Apply the dongle to a USB server port.

The VPLicenseManager files are copied to the **System32** (32-bit Windows) or **SysWOW64** (64-bit Windows) subdirectory of your Windows directory.

In general, a reboot of the server is not required! In some cases it might happen that the **VPLicenseManager** service is not started automatically after installation. In this case you can start the service manually through the computer administrative console. To check whether the **VPLicenseManager** has been installed and is running, please use the **VPNetManager** (described below) for checking.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

The **VPLicenseManager** service is installed with the startup option 'automatic'. That means the service will be automatically restarted after any reboot of the computer.

If the VPLicenseManager is installed and running, you can find out with the program **VPNetManager** (see below).

Uninstallation



For the following steps you have to be logged on to the dongle server as "**Administrator**"!

Variant 1:

Remove the license manager using the Windows Control Panel.

Variant 2:

Start the Windows command prompt. Change to the installation directory of the license manager (e.g. **Windows\System32** or **Windows\SysWOW64**) and execute the following command:

VPLicenseManager.exe -remove

The VPLicenseManager service is removed.

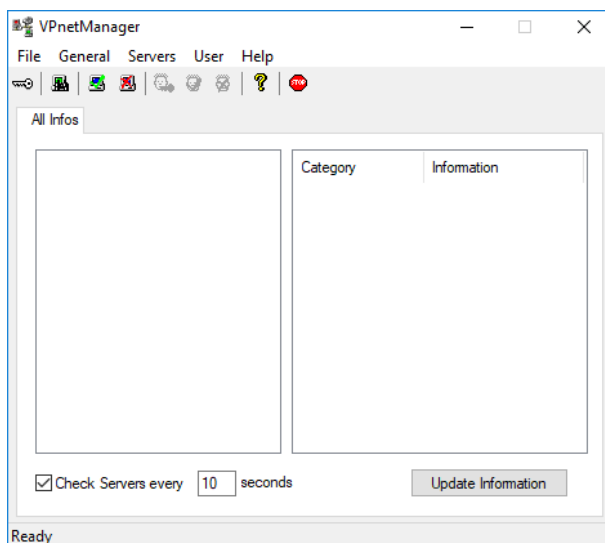
Monitoring the VPLicenseManager

VPNetManager - Introduction

The **VPNetManager** allows monitoring the **VPLicenseManager** servers in your network. The number of the available licenses, the licenses in use, and the users accessing the **VPLicenseManager** servers can easily be overlooked.

The **VPNetManager.EXE** application is located in the CD directory **VPNetManager**. It can be started from the installation menu (**Network / Hardlock ► Run VPNetManager**) or it can be installed (by copying) on any computer (Windows XP or higher) in the network.

After the first start of the application the following dialog appears:



Manage License Servers

If started for the first time or if no server is listed to be monitored the application will automatically search the entire network for **VPLicenseManager** servers (see **Search Servers**).



Search Servers



Menu: **Servers**, Function: **Search Servers**

The application will search the network for any **VPLicenseManager** servers. The search may be stopped by clicking the icon again.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

-  Depending on the size of your computer network the search may take a long time. You can speed up this process by adding the server name manually (see below).
-  If you don't have an account on a computer that is currently being checked a dialog opens asking you to logon with a different user name and password. See also **VPLicenseManager - Requirements**.

When the search has been completed the left window frame displays the symbols for the found **VPLicenseManager** server(s) (**green** screen) and those for the connected hardlock(s).


Add Server



Menu: **Servers**, Function: **Add Server**

Enter the name of a **VPLicenseManager** server:

Enter name of server

-  If you don't have an account on the computer a dialog opens asking you to logon with a different user name and password. See also **VPLicenseManager - Requirements**.

When successfully completed, the server and the attached hardlock(s) will be displayed in the left window frame:



The **green** screen indicates that the **VPLicenseManager** server is working in normal mode.



A **red** screen indicates that the computer could not be found in the network, i.e. the net path may be wrong or the computer is not operating.



The **blue** screen indicates that the computer is not a **VPLicenseManager** server, i.e. the **VPLicenseManager** has not been installed or the program was stopped.



A **yellow** screen indicates that the computer is operating, but another error has occurred. An additional error message is displayed in the status bar of the **VPNetManager**.



If the hardlock is not attached to the **VPLicenseManager** server the symbol for the hardlock will not be displayed.

Remove Server



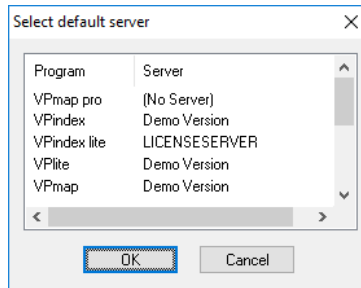
Menu: **Servers**, Function: **Remove Server**

The currently selected server will be removed from the list and will not be monitored any more.

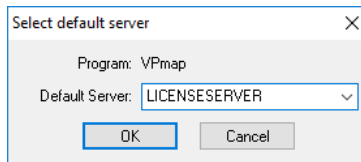
Default Server

Menu: **Servers**, Function: **Default Server**

A dialog opens displaying a list of all **VP** applications installed on the local computer and the respective license server settings:



Instead of checking and changing the server settings in each program you can easily do this with this function. Double-click on the program you want to modify and choose a new server:

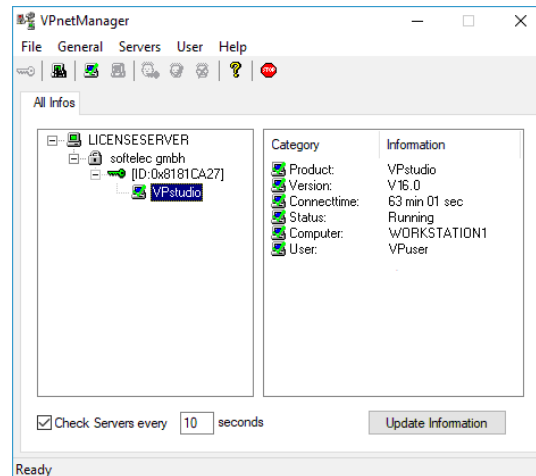


You can also assign the setting **(No Server)** meaning that a locally attached hardlock will be used by the selected program.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Sample

The following sample dialog shows an active **VPLicenseManager** on the computer LICENSESERVER with two hardlocks containing 9 product categories, each marked by a key symbol. Each category may contain several licenses of that product.



In this sample one license of **VPstudio** is currently in use by the user **VPuser**.

Manage Users

A user has to be a member of a user group (user type). There are two types of user groups: group **Administrator** or group **Monitor**. Monitor users have the right to monitor the license servers, the available licenses, and the licenses in use. Administrator users have additional rights to create or delete users.

After the installation of the **VPLicenseManager** only two users are defined:

Name	Password	User group
Administrator	Administrator	Administrator
MonitorUser	no password required	Monitor



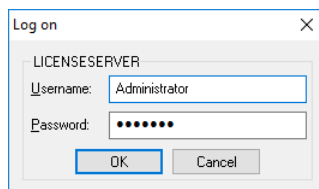
With the first logon the Administrator's password should be changed immediately!

When starting the **VPNetManager** you are automatically logged on as the default user **MonitorUser**. If this default user is deleted on a license server, only the server name and the status of the **VPLicenseManager** is displayed, however there will be no information on licenses. This way administrators can control the access to any license information: delete the standard user **MonitorUser** and create new individual user accounts.

Logon



Menu: **General**, Function: **Logon**



Log on

LICENSESERVER

Username: Administrator

Password:

OK Cancel

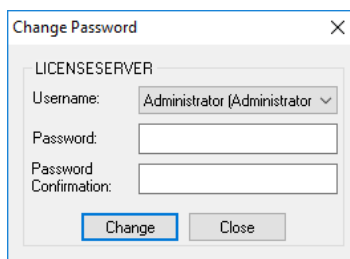
The user will be logged on to the selected server. Note that the user name and the password entry are case sensitive! Additionally, the **VPNetManager** will try to log on the user to any listed **VPLicenseManager** server. If this fails for a server the user will be prompted again to enter a username and a password for this server. With **Cancel** the process is aborted.

Change Password



Menu: **User**, Function: **Change Password**

This function is available for all users except for the default user **MonitorUser**. Users of the group **Monitor** may only change their own passwords while users of the group **Administrator** may change the passwords of all users.



Change Password

LICENSESERVER

Username: Administrator (Administrator)

Password:

Password Confirmation:

Change Close

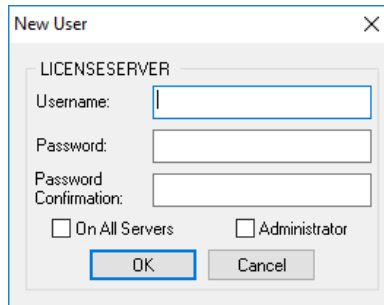
Create



Menu: **User**, Function: **Create**

This function is available only for users who are members of the user group **Administrator**. A new user can be created either on the selected server or on all listed servers:

VPstudio VPraster VPmap pro
 VPstudio mono VPraster edit VPmap
 VPlite



New User [X]

LICENSESERVER

Username:

Password:

Password Confirmation:

On All Servers Administrator

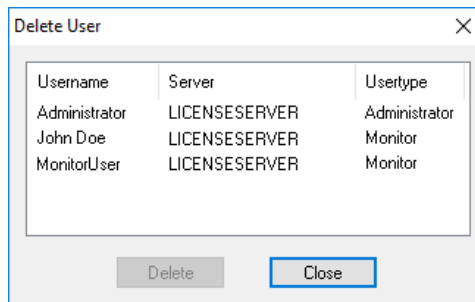
Depending on the selected option a new user of the selected group, either of type **Administrator** or **MonitorUser** will be created. With the activated option **On All Servers** the system will try to register the user on all listed servers. The password default is the user name

Delete



Menu: **User**, Function: **Delete**

This function is available only for users who are members of the user group **Administrator**. A dialog appears to delete users from the user list. All registered users of the selected server are displayed.



Delete User [X]

Username	Server	Usertype
Administrator	LICENSESERVER	Administrator
John Doe	LICENSESERVER	Monitor
MonitorUser	LICENSESERVER	Monitor



The user will be deleted without a warning message.

SECTION 3

SYSTEM SETTINGS, GENERAL FUNCTIONS

General Information

VP Software products are in full compliance with the graphic user interface conventions of Windows and AutoCAD/BricsCAD/ZWCAD respectively. The software has been designed to allow the installation either under Windows (as a stand-alone program) or integrated inside AutoCAD, BricsCAD, or ZWCAD (as an application). Hence, detailed operation instructions may vary with respect to the installation environment.


VP Software has a **Multi Document Interface (MDI)** allowing for opening an unlimited number of documents at the same time and edit/process the contents of the documents simultaneously. You can open raster files, vector drawings, or hybrid files containing raster and vector entities.

Anyone document can contain one or more raster images and/or vector data. The data maybe organized all in one page or in different pages of the same document (**Multi Page Document**), whereby the **Page Control** function controls the pages. In a multi page document only one page can be displayed at anyone time. For **Multi Page TIFF Files** the page control function also allows to select a particular raster image for editing/processing the contained data. This multi page document handling applies only to VP Software products operating under Windows.

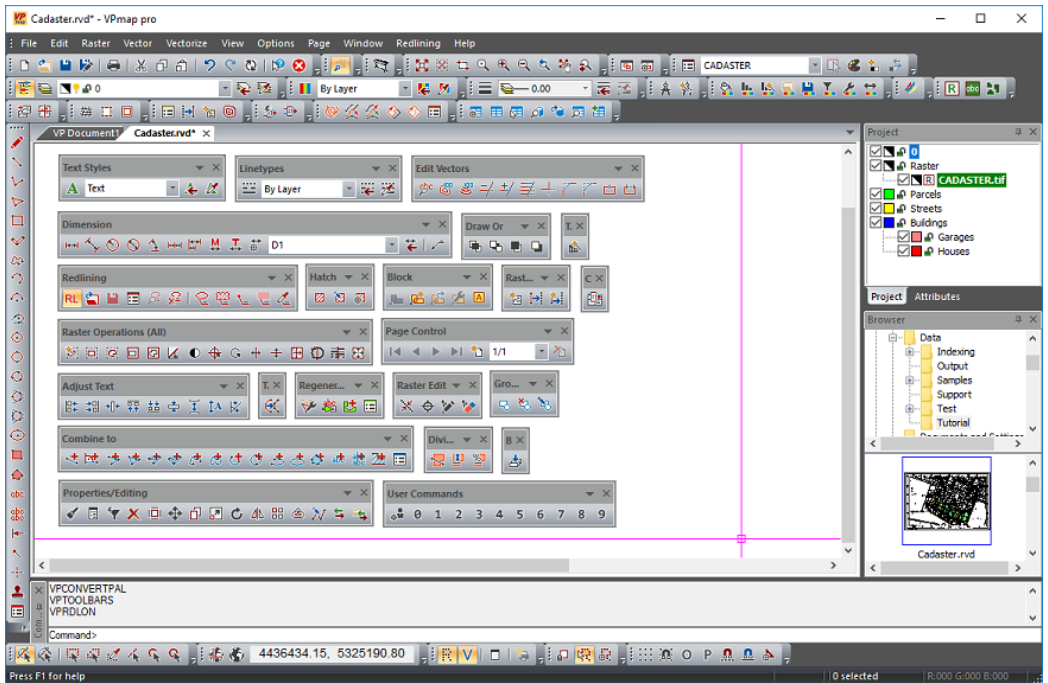
Most functions and routines can be activated through graphic symbols (icons), by selecting the appropriate command from the menus and submenus, or by invoking the adequate commands at the command line. **[F1]** offers access to an extensive online help at any time.

- VPstudio
- VPraster
- VPmap pro
- VPstudio mono
- VPraster edit
- VPmap
- VPlite

Program Start



Start your VP Software with either one of these icons.



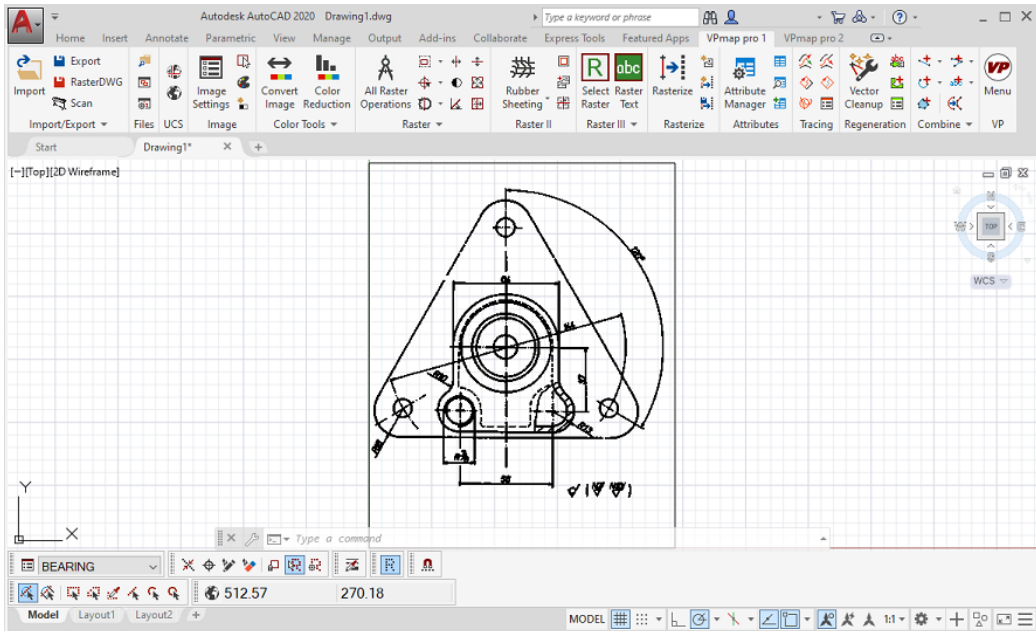
Main Menu Sample: VPmap pro showing all Toolbars

- | | | |
|-----------------|-----------------|-------------|
| ■ VPstudio | ■ VPraster | ■ VPmap pro |
| ■ VPstudio mono | ■ VPraster edit | ■ VPmap |
| ■ VPlite | | |



One of these icons starts your AutoCAD/BricsCAD/ZWCAD together with your VP Software when installed as a CAD application.

Your CAD software starts before the installed VP Software product. You will see mainly the CAD environment with additional toolbars and the VP Software menu included in the CAD menu:



Main Menu Sample: AutoCAD with VPmap pro

If VP is started in a CAD environment, a **CUI** file (Custom User Interface) will be created which contains all necessary details for ribbons, menus and toolbars. Moreover, you will be prompted whether you want to create a new **Workspace** (see corresponding CAD help) or whether you want the current workspace to be expanded.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Start from command prompt

For normal operation you should start VP Software using the shortcut listed above. In some cases, however, you may want to start it directly from a Windows command prompt. The application you have to start is main.exe in the VP Software installation directory.

```
CMD: MAIN.EXE [/?] [FILENAME] [/DDE] [/AUTOMATION] [/EMBEDDING] [/P <FILENAME>]
      [/PT <FILENAME> <PRINTER> <DRIVER> <PORT>] [/B <SCRIPT>]
      [/T <TEMPLATENAME>]
```

/?	Show dialog with usage
FILENAME	File to open on start
/DDE	Start up and await DDE command
/DDENOSHOW	Start up and await DDE command, hide window
/AUTOMATION	Start up as an OLE automation server
/EMBEDDING	Start up to edit an embedded OLE item
/P <FILENAME>	Print file to default printer
/PT <FILENAME> <PRINTER> <DRIVER> <PORT>	Print file to specific printer
/B <SCRIPT>	Script file to execute (only for products which support the script command)
/T <TEMPLATE>	Template file to load

General Handling

Manual, Online Help

VP Software is delivered with an extensive product documentation. An Online Help system is also included and provides retrieval of specific function descriptions.

Menu: **Help ► Help Topics**

CMD: **VPHELP**

The Online Help is provided in various manners:

Help Menu

You will find Online Help in the menu item **Help - Help Topics**.

Command Line

Enter **vp`help`** at the command line.

F1 Key

Using the **[F1]** key. When a dialog has been opened specific information regarding this dialog will be displayed.

Help Button



Click on this button first, then on any other button in the program for obtaining related information.

Toolbars

Upon the first start of VP Software a selection set of the available toolbars is displayed. All toolbars can be switched on/off according to individual user preferences. They can also be positioned and configured by following the Windows conventions. Additional custom toolbars with arbitrary commands can be added.

Icon and pull-down menu commands that cannot be activated in the program's current status (e.g. no raster loaded) appear "grayed".



Only CAD: A few special toolbars, such as the coordinate display or the list of raster images contained in the current document, cannot be generated by a **CUI** file. These will be created as Windows standard tool bars and cannot be combined with CAD toolbars.

Each toolbar can be customized individually by removing or adding icons as they are needed.

A specific positioning of toolbars can be saved as permanent and will be available at any time when it is needed.

Show/Hide Toolbars (only Windows)

- **Context menu:** A right click with the mouse on any docked toolbar opens the context menu for toolbars. The toolbar state show or hide can be changed here.
- **System dialog "Customize":** In this dialog (call up see below) multiple toolbars can be showed or hidden.
- **Button "Close":** Floating (non-docked) toolbars can be closed (hidden) by clicking the close button.

Customize Toolbars (only Windows)

With the system dialog **Customize** the toolbar state show/hide may be changed. Further toolbars can be modified and new toolbars can be created. The dialog can be opened in two different ways:

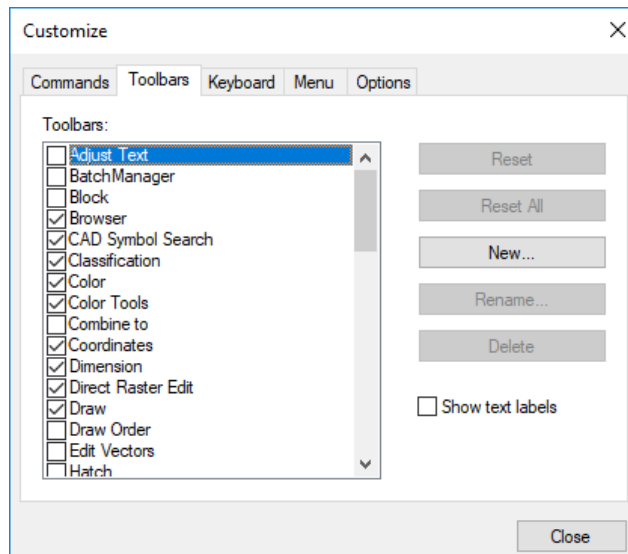
- Click on the **Customize**-button of any docked toolbar...



...and select **Add or Remove Buttons ► Customize...**

- or open the dialog **Toolbars** (Menu **Options ► Toolbars**) and click on **Customize**.

The dialog initially opens with the **Toolbars** tab:



Show/Hide

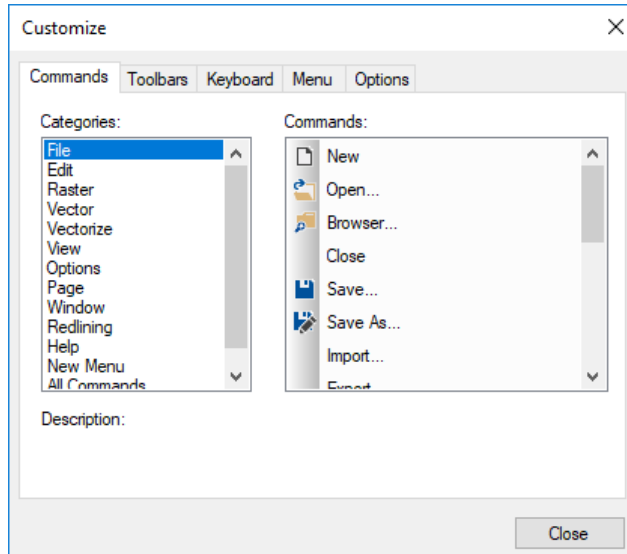
Click the checkbox of the toolbar to show or hide it.

Create a new Toolbar

With **New...** a new, empty toolbar is created. The name may be chosen freely.

Add Icons

Change to the tab **Commands**:



In the column **Categories** the main menu items of the VP software are listed. The column **Commands** list all available commands from the selected menu.

To add a command click and drag with pressed mouse button the selected command to the desired toolbar.

Move/Copy Icons

Select an icon and drag it with pressed mouse button to the new position within the current or to another toolbar. Holding down the **[Ctrl]** key while dragging will copy the icon. For this operation the **Customize** dialog must be opened.

Delete Icons

Click with the right mouse button on an icon and select **Delete** from the context menu. For this operation the **Customize** dialog must be opened.

Customize Toolbars (Quick Access) (only Windows)

Move Icons

Keep the **[Alt]** key pressed, click on an icon in a toolbar and drag it with pressed mouse button to the new position within the current or to another toolbar. For this action the customize dialog is **not** required.

Copy Icons

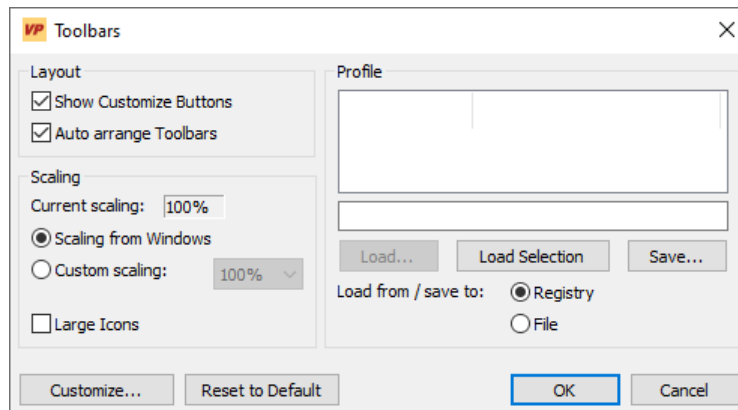
Keep the **[Ctrl] + [Alt]** key pressed, click on an icon in a toolbar and drag it with pressed mouse button to the new position within the current or to another toolbar. For this action the customize dialog is **not** required.

Remove Icons

Keep the **[Alt]** key pressed, click on an icon in a toolbar and drag it out of the toolbar (not to another toolbar). For this action the customize dialog is **not** required.

Organize Toolbars (only Windows)

Menu: **Options ► Toolbars**
CMD: VPTOOLBARS



Show Customize Buttons

When active each docked toolbar is extended with the **Customize** button.



Arrange Toolbars automatically

When active the toolbars will be automatically rearranged to ensure an optimal view if the program window is resized.

Profile

The arrangement of the toolbars can be saved either to the registry or to a file and thus can be restored any time.

Scaling

Toolbars and Menus are scaled according to the selected scale factor.



The size of dialogs is not affected by this setting. To enlarge the entire program including the dialogs and subwindows, use the scaling function of your Windows operating system.

Large Icons: The size of toolbar icons (bitmaps) is doubled.

Customize...

Opens the system dialog **Customize** (see above).

Reset to Default

Reset toolbars to the initial state. All modifications and custom toolbars will be deleted.

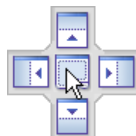
Dockable Windows

Windows like the project bar or the symbol library can be docked to the edge of the program window. When dragging such a window the position marker appears.



Dragging a window with pressed mouse key onto one of the markers the docking position of the window will be displayed. Releasing the mouse will please the window on the selected position. Releasing the mouse without this preview will keep the window in a non docked state.

To dock windows on top of each other creating tabbed windows drag the window over another window and select the center marker:



When the mouse is release the window docks on top of the other window. Tabs will appear on the lower edge of the window with the names of the windows. To release a window right click on the tab and select **floating** from the context menu.

Dockable windows are:

- Command Line
- Project Bar
- Browser
- Symbol Library
- Birds Eye
- Attribute Bar

Dialog Boxes

VP Software uses fixed size and re-sizeable dialog boxes. Once you have set up the size of a variable dialog box this size will be saved and re-used the next time you call this dialog.

If a dialog box uses columns for displaying matching information, the width of each column will be adjusted. You may use keyboard commands according to Windows conventions to modify the arrangement of columns. However, these individual arrangements will not be saved:

Status Display (only Windows)

There is a **comment box** at the lower left screen margin showing:

- **Activated function**, or
- **Required activities to proceed**, or
- **Messages**, or
- **Progress during execution**.

On the right there are 2 boxes for:

- **Count for selected elements**
- The **local RGB color value** if the cursor is positioned on a colored or gray scale image.

When no function has been activated the comment box remains empty, while a '**For Help, press F1**' indication appears on the left.

Display Control Functions

Raster [F4] {on/off}



Toolbar: **View Bar**

Menu: **View ► Show Raster**

CMD: **VPRDISPLAY ► {on/off}**

This function toggles the display of raster data on and off. When you load a raster file, the display of raster data is enabled automatically. The item in the menu will be indicated accordingly.

Vector [F5] {on/off} (only Windows)



Toolbar: **View Bar**

Menu: **View ► Show Vector**

CMD: **VPVDISPLAY ► {on/off}**

This function toggles the display of vector data on and off. When you load a vector file the display of vector data is enabled automatically. The item in the menu will be indicated accordingly.

Plot Style View {on/off} (only Windows)



Toolbar: **View Bar**

Menu: **View ► Plot Style View**

KMD: **VPLOTSTYLEVIEW ► {on/off}**

Vector data will be displayed according to the colors and widths from the current plot style settings. In case that no plot style file is defined, this function is not available. See **Plot Style Settings** for further information.

Bird's Eye {on/off}



Toolbar: **View Bar**

Menu: **View ► Bird's Eye**

CMD: **VPBIRDEYE ► {on/off}**

This function toggles the display of a separate window showing the whole drawing. A green frame indicates your actual zoom position. Clicking and dragging inside this bird's eye window performs a dynamic pan of your current view. Clicking the right mouse button and drawing a rectangle will zoom to the rectangle area. Using the mouse wheel zooms into or out of the view's center.

Zoom Functions (only Windows)

When operating with AutoCAD/BricsCAD/ZWCAD all CAD zoom functions are available.

Zoom Extents [NUM x]



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Extents**

CMD: **VPZOOMX**

The drawing is displayed to its full extents. The drawing's center is mapped to the center of the display.

Zoom Selection



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Selection**

CMD: **VPZOOMSEL**

This function is only available when objects are selected. After selecting objects the function sets a new zoom window, so that all selected objects are displayed in the drawing area.

Zoom Window



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Window**

CMD: **VPZOOMW**

Define a window in your document to enlarge a section.

You can also use the **Fast Zoom Window** function by holding down **[Ctrl+Space]** and then defining a zoom window.

Zoom Pixel [NUM +/-]



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Pixel**

CMD: **VPZOOMPIXEL**

Enlarges the display to show each pixel, i.e. each raster pixel is represented by one dot on the screen.

Zoom In



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom In**

CMD: **VPZOOMIN**

This function zooms in incrementally to the maximum pixel viewing level while maintaining the viewing center point.

Zoom Out



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Out**

CMD: **VPZOOMOUT**

This function zooms out incrementally maintaining the screen center point in view, if possible.

Zoom Previous



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Previous**

CMD: **VPZOOMPREV**

This function lets you work your way back through previous zoomed views. The program remembers a maximum of 32 views. It does not recall pan operations.

Zoom Dynamic



Toolbar: **Zoom**

Menu: **View ► Zoom ► Zoom Dynamic**

CMD: **VPDYNZOOM**

This function lets you zoom dynamically by clicking with the left mouse button onto the screen and move the mouse up (zoom in) or down (zoom out).

Pan Functions (only Windows)

When operating with AutoCAD/BricsCAD/ZWCAD all CAD pan functions are available.

Pan [Cursor Keys]

Menu: **View ► Pan ► Pan Right, Pan Left, Pan Up, Pan Down**

CMD: **VPPANRIGHT, VPPANLEFT, VPPANUP, VPPANDOWN**

You can pan using the **scroll bars** at the bottom and right of the active window, or using the **pan keys** on the keyboard.

Pan Page [Shift]+ [Cursor Keys]

Menu: **View ► Pan ► [Shift]+Pan Right, Pan Left, Pan Up, Pan Down**

CMD: **VPPAGERIGHT, VPPAGELEFT, VPPAGEUP, VPPAGEDOWN**

You can pan using the **scroll bars** at the bottom and right of the active window, or using the **pan keys + [Shift]** on the keyboard.

Dynamic Pan



Toolbar: **Zoom**

Menu: **View ► Pan ► Pan Dynamic**

CMD: **VPDYNPAN**

Click with the left mouse button onto your document and move (pan) as required. Release the mouse button to stop panning. You can also initiate the **Dynamic Pan** function by holding down **[Space]** or the center mouse button. The function is active as long as you are holding the key or button.

Using the Mouse

Display Modes of Mouse Position

Within the work area the mouse position is displayed as a **Cross** cursor. It appears as the default Windows **arrow** cursor in toolbars, menus, or the status area. At the command line it will be displayed as a standard **Text** cursor.



A triple **white frame box** (instead of the standard crosshair) indicates that with the **next** mouse click this area will be zoomed in to allow for a precise positioning with the then following click. To configure the zoom size use the **General** tab in the **System Settings** dialog.

Using the Mouse to Select Elements

Use the **left mouse button** to pick for **Selection**.



Elements to select can be in raster or vector format (**Direct Raster Selection** mode "Vector/Raster Selection" or "Vector/Raster Selection incl. Stop at Intersections"); all other **Direct Raster Selection** modes will only work on raster data. ([See Section 4](#)).



In case that the selection mode does not support vector selection the cursor is changed to the rasterselectioncursor:

When vector elements are overlaying raster elements only vector elements will be selected initially, while raster elements need to be selected again. Selected elements are displayed in a different way than not-selected elements. They bear grips for individual modification and colors or line types may change to highlight the selection.

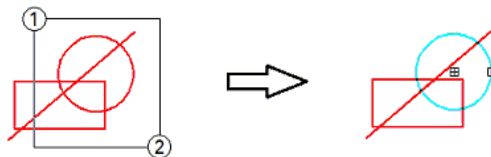
Selecting entities in an image can be done in four different ways:

Clicking

Click on the respective element within the cursor's snapping range. Only **one** element will be selected per click.

Window

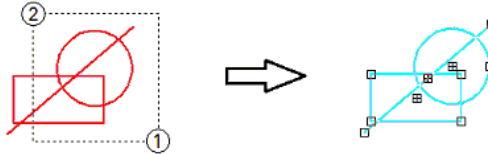
You specify a rectangle by holding down the left mouse button and dragging the mouse **from left (1) to right (2)**. All elements **completely** enclosed by the rectangle will be selected. The rectangle will be displayed with a **full** frame.



■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

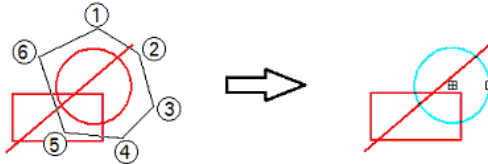
Crossing

You specify a rectangle by holding down the left mouse button and dragging the mouse **from right (1) to left (2)**. All elements **touched or enclosed** by the rectangle will be selected. The rectangle will be displayed with a **dashed** frame.

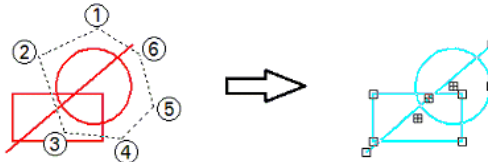


Polygon Selection

Via context menu you can start the polygon selection mode. A **clockwise** drawn polygon selects only elements **completely** enclosed by the polygon. The polygon will be displayed with a **full** frame.



A **counterclockwise** drawn polygon makes a crossing selection: all elements **touched or enclosed** by the polygon will be selected. The polygon will be displayed with a **dashed** frame



Deselection of selected Elements

To deselect elements from a previous selection hold the **[SHIFT]** key and repeat your selection (see above for selection modes).

To **cancel** a selection or to **deselect all** selected elements, press the right mouse button for the context menu, or press **[ESC]**.

Context Menus

Use the **right mouse button** to open context menus. There is a general context menu defined in the software registry. Other menus depend on active functions or commands.

Zoom

You can use the mouse center wheel to

- zoom in/ zoom out .
- move up/move down (scroll) when holding the **[Ctrl]** key.
- move left/move right when holding the **[SHIFT]** key.
- move the display arbitrary when holding down (pan dynamic).
- zoom all by double clicking

Combined Mouse Keyboard Operation

Angle Snap (only Windows)

Pressing **[Shift]** while moving the mouse limits the angle of the following movement:

- With 2 point lines including positioning or other help lines (such as text direction etc.) only **n x 45°** directions are possible.
- With polylines the drawing direction of the **second** and all further segments is limited to only follow a multiple rectangle (**n x 45°**) with reference to the first segment. This allows for drawing rectangle polygons having a base (1st segment) at any angle.

Create a Raster Object

By holding the **[Ctrl]** key and by dragging a rectangle with the left mouse key a raster object can be simply created from an existing raster structure. It can be processed by using the available functions from the context menu.

Command Line

VP Software offers a command line input and execution via keyboard. All functions can be initiated by command line input. Commands are only available (executable) if a document has been opened, except for specific commands like **Open**, **New**, **Help**, etc. Processing a command sequence can be initiated by using a **Scripting File**.

The command line window is sizeable, dockable/undockable, and can be switched off when not needed. The window is split into two parts: The upper part shows the command history, while new commands are entered to the lower part. It automatically appears on keyboard input. To activate the command line simply press **[Shift]+[Return]**. Command line inputs may look like this:



In a CAD installation, the respective command line can also be used for VP commands. Please see your CAD program documentation for more details.

Commands can only be started when the command line shows the **Command>** prompt. Otherwise, the command line prompts for specific input due to the running command.

However, using a command with a preceding single tick mark (') will start the command regardless of the command line state. This can be useful, for instance, when during the drawing of a line (VPDRAWLINE) a zoom command shall be executed ('**VPZOOMX**).

The available commands and their functions are listed in the Appendix of this manual. The shortcut "**CMD**" refers to VP software commands valid for Windows and CAD operation. Commands with the shortcut "**CAD**" refer to commands valid only for CAD operation.

The available commands are listed with the corresponding functions in this manual.

A command string consists of the **command header** and can be extended by **options/parameters**. Any command starts with the two letters "**VP**" followed by the command name. The command header is the main command for any particular function or operation. For entering you may use upper and/or lower case letters. Enter **[Return]** for execution.

The command syntax is as follows:

VPXXXX <X₁>, <X₂> <X₃> [/P|Parameter <X₁>, <X₂>]

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

The preceding characters **VP** may be omitted in stand-alone mode. They are only mandatory when operating with AutoCAD/BricsCAD/ZWCAD to separate VP software commands from CAD commands or from commands of other applications.



If VP software is operated under a CAD program, the system variables **CMDDIA** or **FILEDIA** determine whether the command line parameters for a VP command will be queried. Other than with CAD commands, these need then to be entered as a complete line, including spacing between individual value entries.

Options <X₁> <X₂>, <X₃>

Options are command supplements which may be required to execute the command. As indicated in the dialog **Registered Commands** some commands do not allow options at all, some may have options, and some always require options. The values X₁, X₂ etc. can be separated by either **comma(s)** or **space(s)**. This delimiter strategy allows for entering an extended command string prior to executing the complete command with **[Return]**.

Parameter [/P|Parameter <X₁>]

Parameters are always optional. Therefore, they are listed in this manual in brackets. A parameter definition starts with a "/" (slash) followed by a parameter's name or abbreviation. Names and abbreviations will be displayed with a separating "|" (dash), e.g. **"/P|Parameter"**. A parameter can require options, which are demanding if the parameter is used at all. These parameters are shown within the brackets enclosing the parameter and the required options.

Delimiter

Options and parameters have to be separated with a delimiter. As delimiters either a **comma** or a **space** character are available. Multiple spaces and/or commas between two option values are interpreted as one delimiter.

If a parameter uses either a space or a comma as part of the parameter - e.g. if you use a file name as the parameter to the command **VPOPEN** which carries space(s) - you need to enter this parameter in quotations marks: **VPOPEN "C:\VP SAMPLE.TIF"**.

Command Query

If you enter any command followed by a slash and a question mark, e.g. **VPDRAWLINE /?**, the system will display all options/parameters for this command.

Repeating Commands

Entered commands can be repeated by using **[↑]** and **[↓]** cursor keys.

Completing Commands

You may use the **[TAB]** key to complete a command. A repeated pressing on **[TAB]** will prompt the next command option in alphabetical order. Using **[SHIFT] + [TAB]** reverses this order.

Example: "VPDRA" and **[TAB]** will prompt "VPDRAWPIX".
"VPDRA" and **[SHIFT]+ [TAB]** will prompt "VPDRAWCOPY".

Alias Names

The command header of a command string may be replaced by an **alias name**, usually a short abbreviation being especially useful with commands which are often used. The file **ALIASES.PGB** located in the **SUPPORT** subdirectory contains alias names which may be modified or extended at users discretion. The default alias names are listed in the APPENDIX.

Entering Coordinate Values

Coordinates can be entered in absolute values as x,y, in relative values as @x,@y, in length and angle values as l<phi, or only as length l value (while the angle value will result from the current mouse cursor position and the last coordinate value pair). A mixed entering of absolute and relative values is also possible, e.g. @x,y or x,@y.

The last coordinate value pair is prompted in the command line as <x,y>. You can confirm values with **[Enter]** or change values with **[Tab]**.



A **comma** is always considered as a separating symbol. Thus, to enter decimal values a decimal **point** must be applied, regardless of any other settings in your Windows system.

Command Line {on/off} (only Windows)

Menu: **View ► Command Line**

CMD: **VPCMDLINE**

Switches the command line on and off.

Activate Command Line (only Windows)

Menu: **View ► Command Line**

CMD: **VPACTCMDLINE**

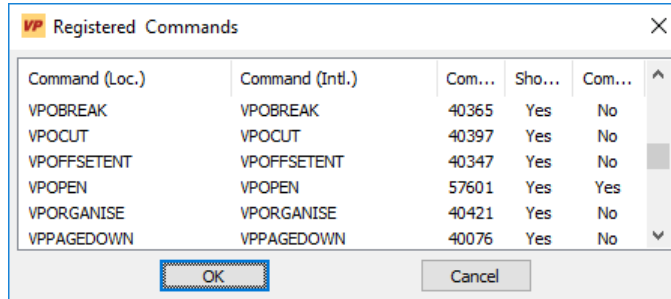
Activates the command line at any program state.

List Commands

Menu: **Options ► Registered Commands**

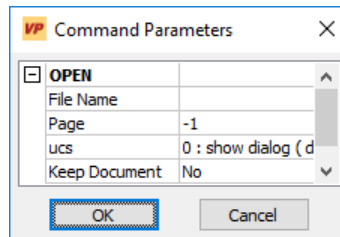
CMD: **VPLISTCOMMANDS**

A list of all available commands will be displayed:



You can double-click **Yes** in the column **Command Parameters** to access the parameters that are available for the respective command. When changes have been made leave the dialog with **OK** to use the command with new parameters.

Example for the **VPSPECKLES** command:



File Menu

This menu manages the loading, saving, import and export of raster and vector files. When a scanner device is connected drawings can be scanned directly into the **software**. You can also load program extensions, print/plot hybrid (raster and/or vector) data and exit the program.

All functions are in compliance with standard Windows conventions. Hence, descriptions will only be given in detail regarding differing functions or on those which are of high importance.



When operating VP software with AutoCAD/BricsCAD/ZWCAD the CAD commands **Open**, **Save** and **Save as** need to be applied to open and save DWG files. To load and save raster images the VP commands **Import** and **Export** can be applied.

New [Ctrl + N]



Toolbar: **Standard**

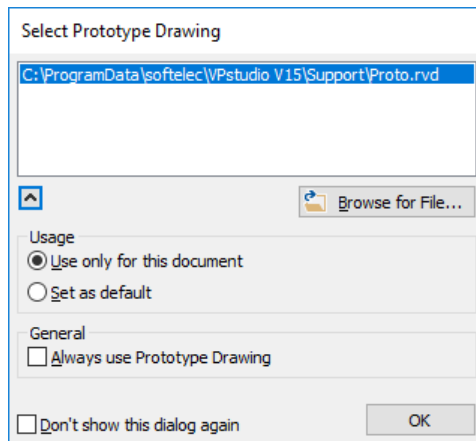
Menu: **File ► New**

CMD: **VPNEW**

CAD: **_new**

A new document opens. If a prototype drawing file has been assigned it will be read and the environment of the new document is set accordingly.

By default a dialog pops up to specify a prototype drawing. Whether this dialog shows up or not can be set here, or at **Options ► System settings...** Tab **Files/Paths**.



Select the desired prototype drawing from the list or **Browse for a File**.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Any new specified prototype drawing will be added into the list for future use. The default prototype drawing is preselected. Use **[Del]** or the context menu to delete an entry from the list.

Use only for his document: The selected prototype drawing is loaded. With the next **New** command the default prototype drawing is preselected again.

Set as default: The selected prototype drawing is also set as new default. See also **Options ► System Settings...**, Tab **Files/Paths**.

Always use Prototype Drawing: Related to the **Open** command. By default only on **Open** of pure raster files the prototype drawing is preloaded. For vector data like DWG files the prototype drawing is not preloaded. With this option set to **on** the prototype drawing is always used, independent from the file format to open. See also **Options ► System Settings...**, Tab **Files/Paths**.

If you want to create a new (empty) raster image for a document (new or containing data) use the function **New Raster** from the **Edit Menu** (see **Section 4**).

Open [Ctrl + O] (only Windows)



Toolbar: **Standard**

Menu: **File ► Open**

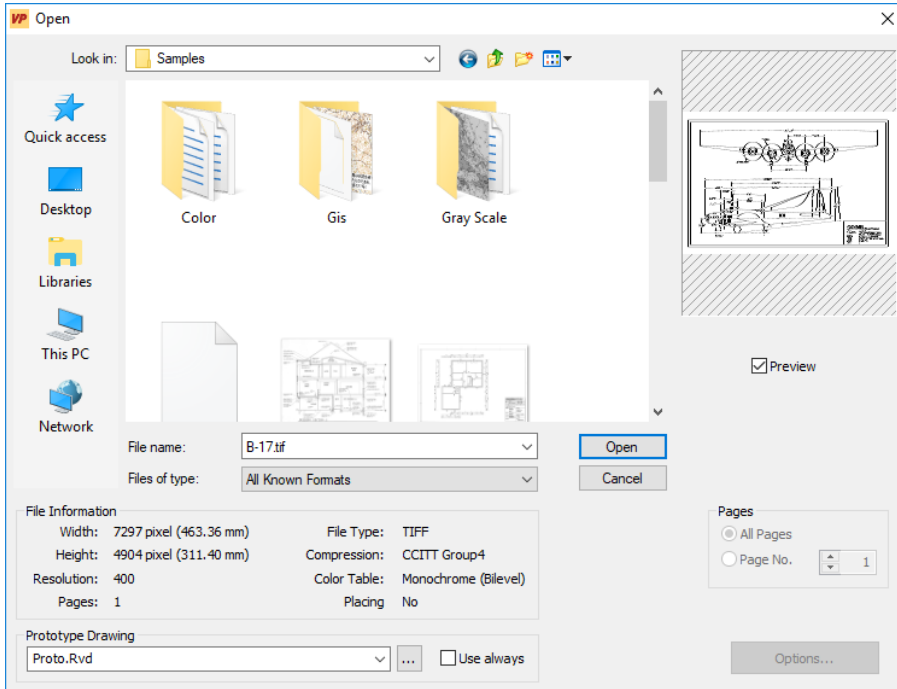
CMD: **VPOPEN ► Dialog**

CMD: **VPOPEN <File Name> [P|Page <value>] [k|Keep <0|1>]**

CAD: **_open ► Dialog**

When clicking this command a dialog box opens to select one or more files (raster, vector, or hybrid) for loading into a new document.

- VPstudio ■ VPraster ■ VPmap pro
- VPstudio mono ■ VPraster edit ■ VPmap
- VPlite



All supported files are displayed. When selecting a file the file information and a **preview** is shown if the function **Preview** is switched **on** and this file format provides a preview.

The list of supported formats can be found in the **Appendix**.

The selected file will be opened in a new document. Depending on the settings, a prototype drawing will be preloaded (see below).

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Multi Page Documents [P|Page <value>]

For multi page files you can select to either open **all pages** or only a particular page (**page no.**).

Default **All pages**

Keep Document [k|Keep <0|1>]

No new document is created when loading a file. Instead the content of the current document is cleared. Using this options with scripting or batch jobs can reduce memory consumption or overload.

Default **0**

Prototype Drawing

Shows the current prototype drawing. You may select a previous used prototype drawing from the drop-down list. The default prototype drawing is preselected. The drop-down list is disabled if the selected file format is a vector format.

Use always allows to specify a prototype drawing for vector formats as well. This switch is equal to the one in **Options ► System Settings...**, Tab **Files/Paths**.

Off: Depending on the file format of the selected file the drop-down list is enabled or not. If enabled the selected prototype drawing will be preloaded.

On: The selected prototype drawing will always be preloaded.

For more information about the prototype drawing see in **Options ► System Settings...**, Tab **Files/Paths**.

Options

Some file formats offer additional settings through the **Options** button. For more information see **File Format Options** below in this section.



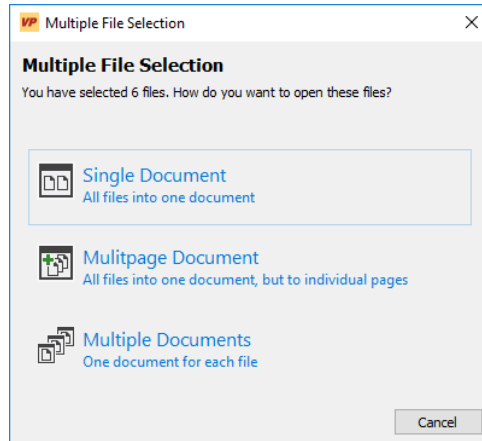
The native **VP** format **RVD** replaces the formats **VCF** and **VCI** used in earlier **VP** products. However, input filters still allow for loading or importing those formats.



CGM: the import of raster is limited to uncompressed 1bit (b/w), 8bit (indexed color), 24bit (true color), and RLE compressed 1bit data.

Multiple File Selection

When more than one file has been selected the following dialog appears to control how the individual files are going to be opened:



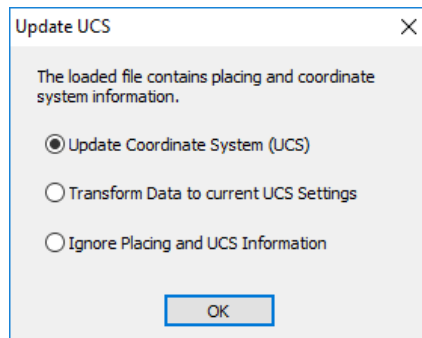
- **All files into one document**
All selected files are loaded as separate raster objects in one document
- **All files into one document, but to individual pages (Multitpage)**
Creates a multi page document
- **One document for each file**
Opens each selected file as separate document



When operating under CAD only the first option is available!

Update Coordinate System

When opening a raster file containing coordinate settings and placing information (e.g. TFW or GeoTIFF) a dialog will ask how to handle this information.



■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Update Coordinate System (UCS): The data of a TIFF file is used to update the coordinate system; the image is placed accordingly.

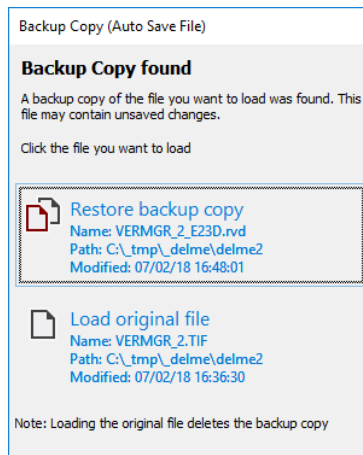
Transform Data to current UCS Settings: The existing coordinate system remains unchanged; the insertion point's coordinates of the image are transformed accordingly.

Ignore Placing and UCS Information: The existing coordinate system remains unchanged - no transformation is performed; the image is inserted at the position (0,0).

Default: Update Coordinate System (UCS)

Backup Copy

If a backup copy is found for the selected file, a dialog pops up:



You can decide to load the **original file** or the **backup copy**.

For more information about automatic saving see **Options ► System Settings...**, Tab **Files/Paths**.

Browser

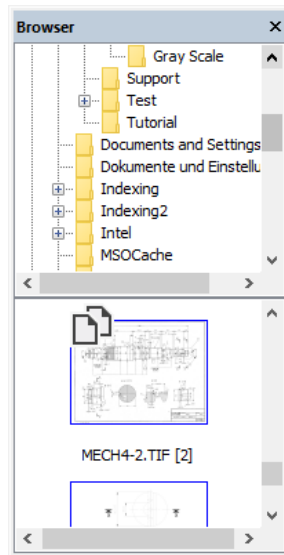


Toolbar: **Browser**

Menu: **File ► Browser**

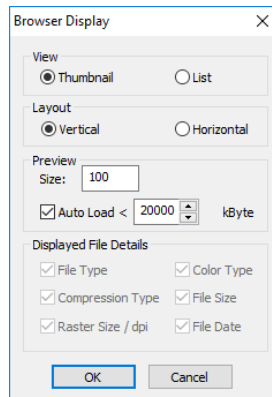
CMD: **VPBROWSER**

The following dialog opens:



The Browser allows an easy way to open a new document by **Drag & Drop** or **double click**. Multipage documents display a folder symbol in the upper left corner. Double click will create a preview with all pages from the document.

The context menu command **Browser Configuration** offers additional settings for the Browser:



Import

Menu: **File ► Import**


CMD: **VPIMPORT ► Dialog**

CMD: **VPIMPORT <File Name(s)> [P|Page <PageNo>][/m|Mode <Mode>]
 [/x|XInsert <XInsert>][/y|YInsert <YInsert>][[/sx|ScaleX <ScaleX>]
 [/sy|ScaleY <ScaleY>][/a|Angle <Angle>][/b|BlockDefs <BlockDefs>]**

The content of a file is merged with the active document. Existing document settings in the active document, e.g. layer names, will be kept; the layer settings of the imported files are discarded. This may lead to a different display of the imported file, e.g. if the layer properties are different in the active document.

The **Import** dialog equals the **Open** dialog (see above), with the following changes:

- additional option to **Specify Insertion Point**
- the section **Prototype Drawing** is hidden, because on **Import** no new document is created

 When using a multiple file selection together with the option **Create individual documents** the **Open** command is used instead of **Import**!



This command may also be started by the **Open** -Icon while **[Ctrl]+[Shift]** is pressed.

(Positioning) Mode /m

This command line option specifies how the imported file is to be positioned:

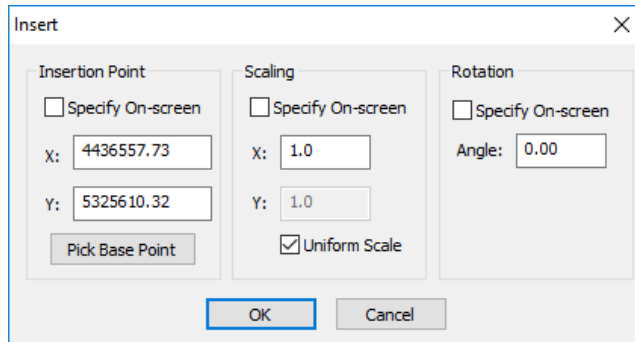
- 0 - use (Positioning) data from file
- 1 - ignore all data
- 2 - interactive
- 3 - use subsequent data

In **interactive** mode (2) the **Specify Insertion Point** dialog is displayed for positioning. For a direct input of insertion point values, scaling, and rotation use mode 3.

Specify Insertion Point {on/off}

If you set this parameter to **on** you can define the insertion point for the file you are going to import.

Default **on**



You can either select **Specify on Screen** or enter values for the parameters **Insertion Point**, **Scaling**, and **Rotation**. You may also pick the Base Point on the import file. Otherwise, the base point is at the lower left corner of the file.

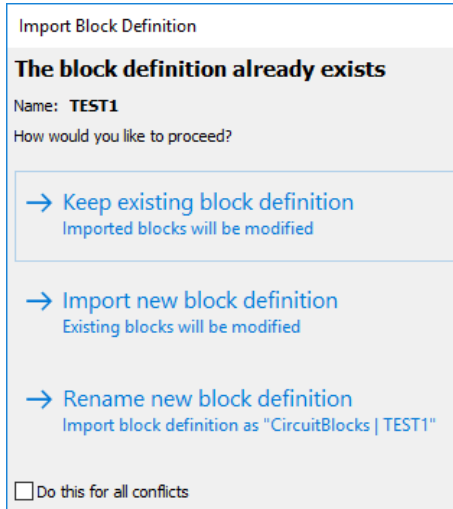
When importing a file, which contains coordinate settings and placing information (e.g. GeoTIFF) they will be recomputed to the actual UCS settings.



In case of projected coordinate systems with different projection types in the imported and current document a geographic 2D transform will be performed to adjust the UCS settings. For a user defined transform see User Coordinate System in chapter 4 (VPmap Series only).

Merge Block Definitions

If the file to be imported contains block definitions which already exist by name, you have to decide how to handle this conflict. If not specified otherwise this dialog pops up for each conflict.



Import Block Definition

The block definition already exists

Name: **TEST1**

How would you like to proceed?

- Keep existing block definition
Imported blocks will be modified
- Import new block definition
Existing blocks will be modified
- Rename new block definition
Import block definition as "CircuitBlocks | TEST1"

Do this for all conflicts

Keep existing block definition

The block definition of the file to be imported will be ignored. Any references to this block definition will be assigned to the existing block definition. This may change the appearance of the imported block reference(s).

Import new block definition

The new imported block definition will replace the existing block definition. All blocks referencing to the old block definition will be reassigned to the new block definition. This may change the appearance of the existing block reference(s).

Rename new block definition

The new imported block definition will be renamed. All references, existing or new imported, stay untouched.

Do this for all conflicts

If activated, the chosen procedure will also be used for any further conflicts. The dialog will not show up again.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Save [Ctrl + S] (only Windows)



Toolbar: **Standard**

Menu: **File ► Save**

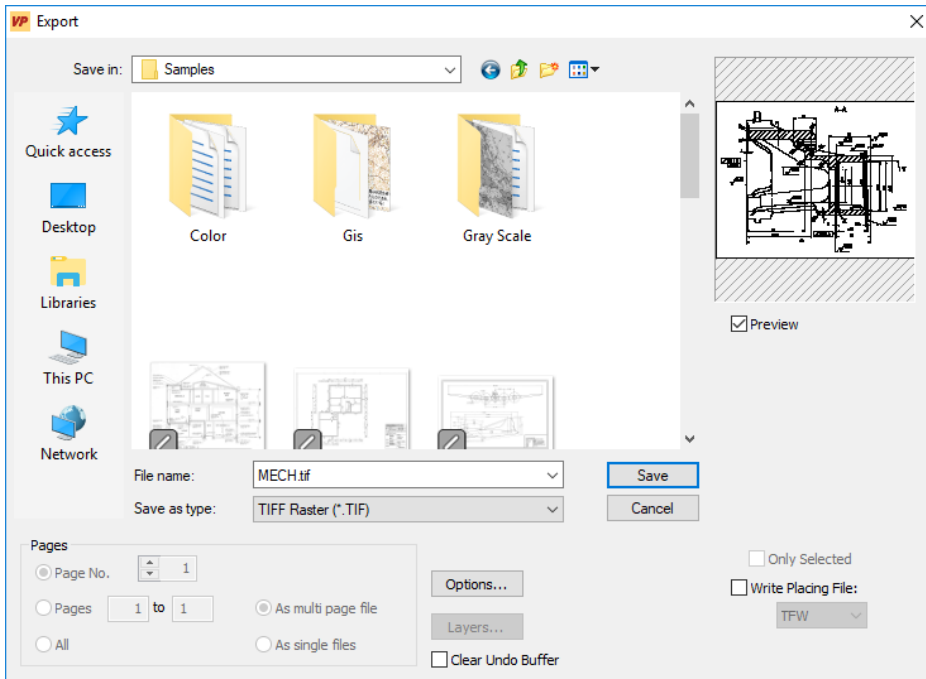
CMD: **VPSAVE ► Dialog**

CMD: **VPSAVE <File Name(s)>**

CAD: **_save ► Dialog**

If you use this command the first time after loading a document, the **Export** dialog pops-up to ask for a file name. As Default the name and extension of the opened file will be offered. Any future save of this file will automatically overwrite the previous save without any message.

If the selected file format does not support all data of the document (e.g. any raster file format does not support any vector information) a warning will pop up on first use.



Preview

You can switch the preview on or off. The preview displays the data which will be saved.

Options

For some file formats the **Options ...** button will be enabled. In this case there are additional options available to specify how to save the data. For details please refer to the **File Format Options** later in this section.

Layers

The dialog **Layer Manager** is displayed for modifications of the layers' export settings. See **Section 4: Document Settings, Document Functions** for details.

Multi Page Document

If your document is a multi page document you can save all pages into a multi page document or all pages into single files (i.e. each page into a separate file). The options **All as multi page file** is only available for specific file formats (e.g. TIFF + PDF).

When saving multi page documents with the option **As single files** the software will prompt for a filename for each page. When using "%d" as part of the filename it will be replaced by the page count automatically.

If you select **Page No. "n"**, only this page will be saved into a separate file.



If you select/specify an already existing file (name) and this format supports **multi page** (e.g. TIFF + PDF), on **Save** you will be asked whether you want to override the existing file or append your current document as new page to the existing file. When **Overwrite** is selected only the **modified** pages will be replaced in the file. This happens only if no pages have been added, removed, or less than 30% have been modified. In all other cases the whole file will be written. Overwriting individual pages will increase the file size. To compact the file it is recommended to save it once in a while to a new filename.

Only selected (on/off)

Only the selected entities and/or images are exported.

Default: **on** (if entities are selected)

Georeferencing

An additional file with placing data is created if the option **Write Placing File** is set to **on**. These files are used mainly by geographic applications (GIS). The file name equals the name of the raster file. The file extension is assigned according to the placing format (e.g. TFW or TAF).



In order to produce a valid TFW file the **User Units** of user coordinate system must be set to **Meters [m]**. Otherwise, an error message is displayed.

Clear Undo Buffer (on/off)

When saving is complete, all data in the undo buffer is deleted.

Default: **off**

Save As (only Windows)



Toolbar: **Standard**

Menu: **File ► Save as**

CMD: **VPSAVEAS ► Dialog**

CAD: **_saveas ► Dialog**

Similar function as **Save**, except that the dialog always opens for assigning a file name.

Export

Menu: **File ► Export**

CMD: **VPEXPORT ► Dialog**

CMD: **VPEXPORT <File Name(s)> [P|Page <value>] [O|Options <options string>]**

This function is very similar to **Save** with the difference that the document name is not changed to the name of the export file. Furthermore and without notice only those elements supported by the selected format will be saved. Exporting to e.g. **TIF** will only save the active raster image, since the format neither supports multiple raster data on one page nor any vector data. The options **/tfw** and **/tfwf** control the generation of **Placing files** (see Save) and, if so, which format should be used.



This command may also be started by the **Save**-Icon while the **[Ctrl]** is pressed.

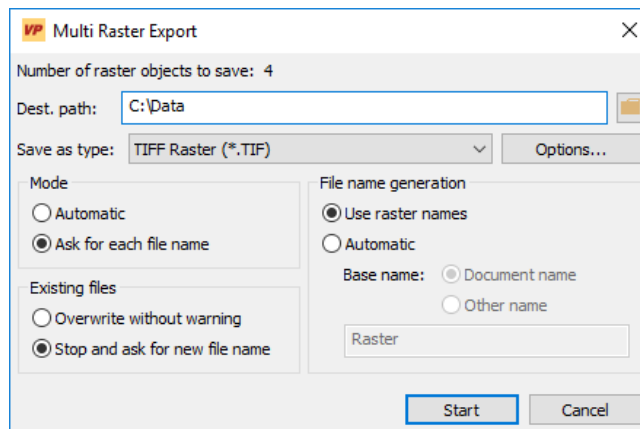
Multi Raster Export

Menu: **File ► Multi Raster Export**

CMD: **VPMULTIREXPORT ► Dialog**

CMD: **VPMULTIREXPORT <dest. path> <File format> [/rn <0|1>] [/dn <0|1>] [/bn <Name>] [/o <Options>]**

Export all raster objects of the current document. If raster objects are selected when starting this command, only these will be exported. The command can run interactively or automatic.





Dest. path

Destination path. Enter a valid path or use the browse button to select one.

Save as type

Destination file format. Select one of the supported raster file formats. You can also choose the VP internal RVD format.

Options...

If the selected file format has additional save options, these options can be specified here. By default the last used settings for **Export** or **Save** will be used. Any modifications here will not override the last used settings and are valid only for this process.

Mode

- **Automatic:** The raster objects will be saved according to the settings below without any further prompt.
- **Ask for each file name:** Interactive Mode. For each raster object a dialog pops up to specify the file name.

Existing files (only automatic mode)

- **Override without warning:** Any existing file will be automatically overwritten. No warning will pop up and the process will not stop.
- **Stop and ask for new file name:** The automatic process will stop and a dialog pops up to ask for new file name (see **interactive Mode** below)

File name generation

- **Use raster name:** The name of the raster object as shown in the **Project Bar** will be used.
- **Automatic:** A **Base name** is used and a counter is appended, e.g. **Name(001)**. As **Base name** either the document name (= document title) or any **Other name** specified below can be used.

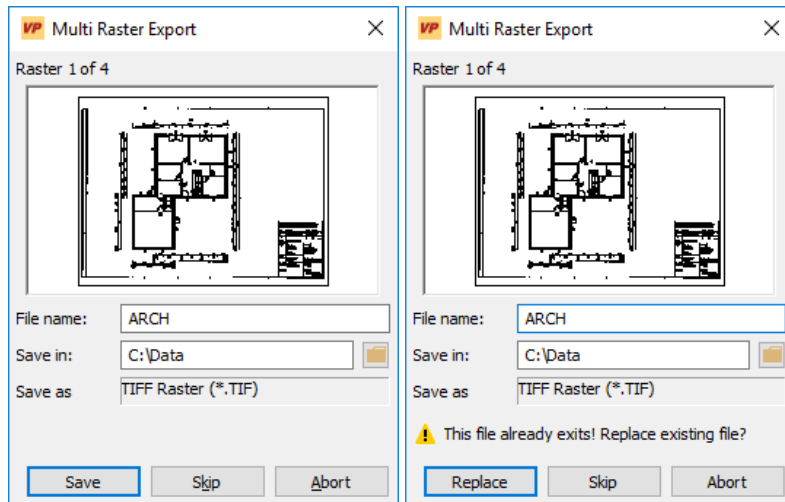
Parameter

When starting the command with a complete command line (e.g. in a script), it always runs in the **Automatic** mode.

/rn 1 = use raster name, 0=use **base name** (default: 1)
/dn 1 = document name is base name, 0 = use other name (default: 1)
/bn **base name** (default: the document name)
/o options of the chosen file format. See **File Format Options** below (default: last used)

Interactive Mode / Existing files

The dialog below pops up in either the interactive mode, or, if specified, if a file already exists:



You can specify a new file name and a new destination path. If a file with this name already exists a warning will be shown.

Save as RasterDWG (only CAD)



Menu: **File ► Save as RasterDWG**

CAD: **_vpsaverdwg ► Dialog**

Saves the active document to a hybrid RasterDWG file.

Close

Menu: **File ► Close**

CMD: **VPCLOSE**

CAD: **_close**

Closes the active document. If the document has been modified a message will ask, if the modified file should be saved or not.

Close without Safety Prompt (only Windows)

CMD: **VPCLOSEALWAYS**

Closes the active document without safety prompt ("Save changes?"). The purpose of this command lies mainly in script processing, when after a file export the document is still marked as modified but shall be closed anyhow.

File Format Options

Some file formats allow for setting additional parameters. The dialogs can be opened with the **Options** buttons in the Open/Import and Save/Export dialogs respectively.

The available options for file formats are described below.

Geo Referencing

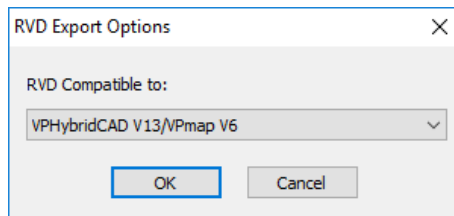
If the option **Write Placing File** is checked a separate file will be generated and saved under the name of the raster file but with the extensions **TFW** or **TAF** containing the positioning information of the raster image. This placing information will often be used in GIS applications for a correct placing with regards to the coordinate system.



In order to generate a valid TFW file the **User Units** must be set to **Meter [m]**. Otherwise, an error message appears.

RVD Export Options

For compatibility with older VP products the appropriate RVD file version can be selected.



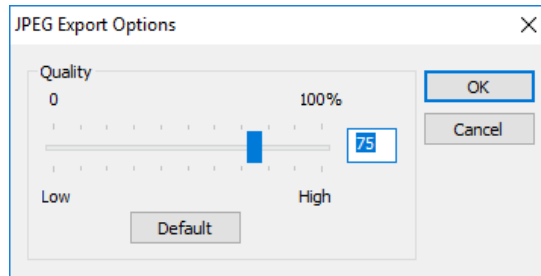
Default: **VPHybridCAD V13/VPmap V6**



Any RVD file version that is not the actual one may lead to a loss of data: e.g. the new **Leader** entity cannot be saved in any RVD-Version older than V13/V6.

JPEG Export Options

When exporting raster data to JPEG you can specify the **Quality** of the created JPEG-file.

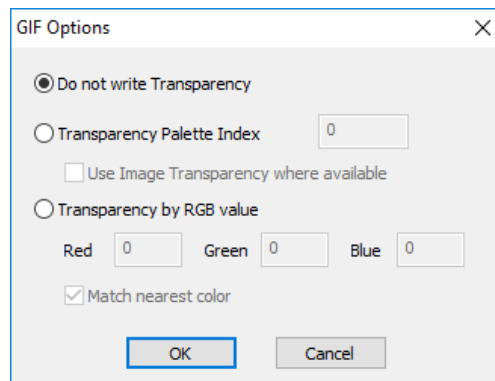


Low Quality means high compression (small files), but also high color quality loss, **High Quality** means the opposite.

Default: **75%.**

GIF Export Options

The GIF file format allows you to specify a color via which should be transparent (not displayed). This color can be specified for all following exports to GIF.



Do not write Transparency {on/off}

This option turns off the transparency (none of the colors will be set to transparency).

Default: **on**

Transparency by Palette Index

The color according to the palette index displayed in the **Image Palette** dialog will be set to transparency.

Default: **off**

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Use Image Transparency where available

Use the color, that is set under **Transparency** in the **Image Palette** dialog.

Default: **off**

Transparency by RGB Value

The color defined by its RGB value will be set to transparency. Since only palette entries can be set transparent and often the RGB value does not exactly match a palette entry, there is an additional switch to find the nearest color in the palette.

Default: **off**

Match Nearest Color {on/off}

If checked **on** the closest index value matching the defined RGB value will be used to set this color to transparency.

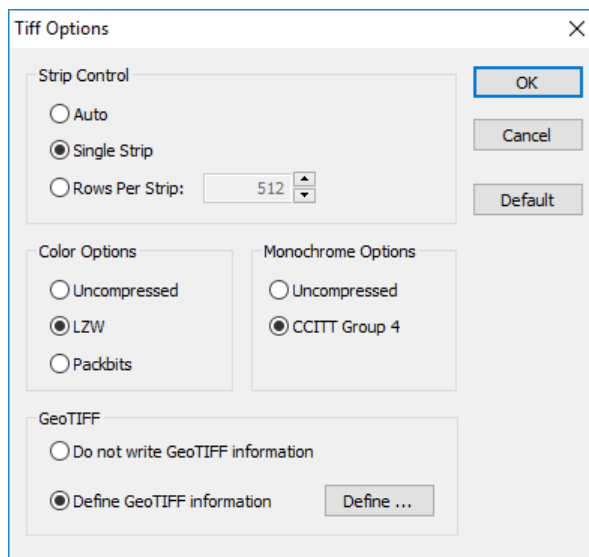
Default: **off**

TIFF Export Options

Exporting raster images using the TIFF file format provides a choice of several compression methods and strip sizes. The current settings are saved and will be used for future TIFF export operations. Modifications in the settings are recommended only if problems are encountered when loading exported files into other applications.

For most images the default settings produce the smallest file sizes and can be loaded into most applications.

When clicking the **Default** button all options are reset to default values.



Strip Control

TIFF data can be written in whole (single strip) or in strips. Select between:

- **Auto** calculates the strip size so that it amounts to roughly 8 KB of uncompressed data.
- **Single Strip** writes the file in whole.
- **Multi Strips** The number of **Rows Per Strip** can be entered into the edit field.

Default: 512

Default: Single Strip



A large number of strips result in large file sizes. Also, do **not** choose the option **Auto** with very wide images (> 6.000 pixels).

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Color Options

The compression method affects the resulting file size substantially. Colored images can be compressed as follows:

- **Uncompressed** the data will not be compressed.
- **LZW** Typically generates the smallest file sizes.
- **Packbits** Compresses data using the Packbits method.

Default: LZW

Monochrome Options

The compression method affects the resulting file size substantially. Monochrome (b/w) images can be compressed as follows:

- **Uncompressed** the data will not be compressed.
- **CCITT Group 4** Generates highly compressed data.

Default: CCITT Group 4

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

GeoTIFF

Do not write GeoTIFF information {on/off}

If turned **on** a standard TIFF format without additional information about projection or geocentric coordinate systems will be generated.

Define GeoTIFF information {on/off}

Activating this option enables the button **Define ...** to specify which kind of GeoTIFF data will be generated and included into the TIFF file. Pressing the button opens an extended dialog for specifying the primary keys for a GeoTIFF geo-referencing.

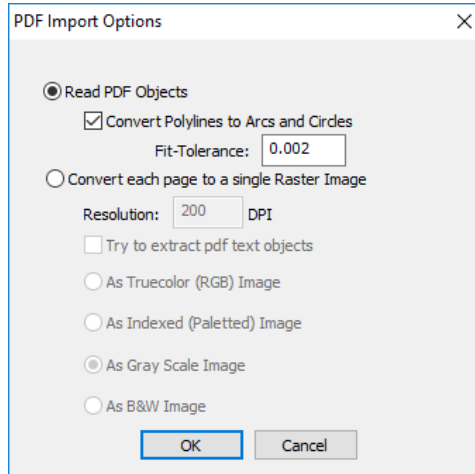
In the **GeoTIFF Options** dialog you can choose whether to work with the standard GeoTIFF tag values according to the GeoTIFF 1.0 specifications or to have an extended list of tag values, which has been compiled from the EPSG Coordinate System Database. Also, settings from existing GeoTIFF files can be imported using the **Load from File Browse ...** button.

For detailed information on the GeoTIFF extension values please refer to:

- GeoTIFF www.remotesensing.org/geotiff/geotiff.html
- European Petroleum Survey Group (EPSG): www.epsg.org

PDF Import Options

PDF files can be imported as is on an object basis or as a single raster image.



Read PDF Objects {on/off}

The file is read on an object basis. As PDF does not support arc or circle elements, the option **Convert Polylines to Arcs and Circles** forces the program to try a re-computation of polylines to automatically convert them to an arc or circle. The **Fit Tolerance** is the maximum allowed deviation between the original polyline and the computed arc or circle.

Convert each page to a single raster image {on/off}

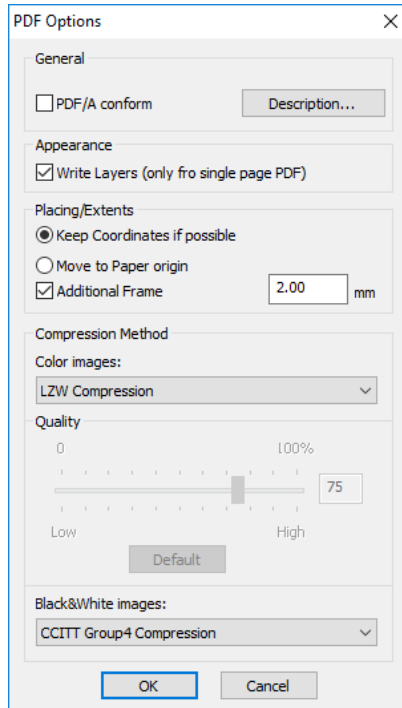
The content of each page is read as a single raster image. With **Resolution** and the image type settings (**Truecolor**, **Indexed**, **Gray Scale** or **B&W**) the image can be further specified.

Try to extract text objects {on/off}

In case the file contains text it will be preserved as individual objects.

PDF Export Options

With the export into PDF the PDF version, placing, and extents, as well as the compression of raster data can be controlled. The compression method affects the resulting file size substantially.



PDF/A conformity

This will generate a PDF file for long-term archiving. **Description...** opens a dialog to enter optional information on **Author**, **Theme** and **Keywords**.

Color Images

Colored images can be compressed as follows:

- **LZW** Lossless compression.
- **DCT/JPG** Compression with possible losses. Use the slider button to determine the compression degree (**Quality**). **Low Quality** will result in a high degree of data compression, however, with high losses of detail information. **High Quality** will result in a reverse effect.
- **Uncompressed** Data will no be compressed..

Default: **LZW**
 75% (with DCT/JPG compression)

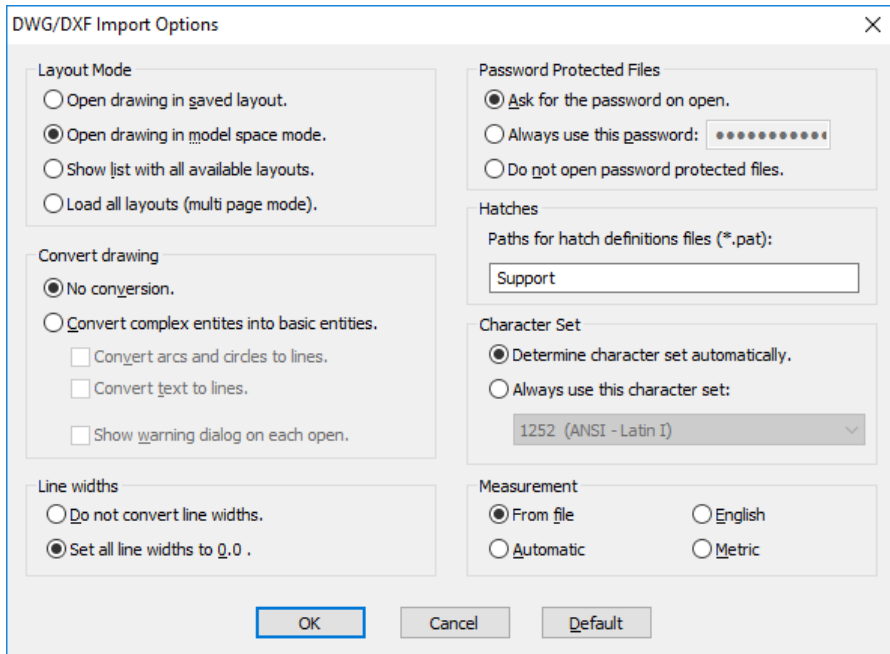
Black&White Images r

Black& White images can be compressed as follows:

- **Uncompressed** the data will not be compressed.
- **CCITT Group 4** Generates highly compressed data.

Default: **CCITT Group 4**

DWG/DXF Import Options



Layout Mode

Determines which layout of the DWG / DXF file is to be loaded. You can either select the saved **active layout** or the standard **model space**. Alternatively, and prior to opening, a dialog can be displayed for individual layout selection (**Show list with all available layouts**), or to load all available layouts (**Load all layouts (multi page mode)**).

Default: **Open drawing in saved layout**

Password Protected Files

- **Ask for the password on open** On opening a password protected file the password has to be entered in a dialog.
- **Always use this password** If many files use the same password it can be entered here for usage with all protected files. For safety it is saved in encrypted form. On opening a file no dialog is displayed.
- **Do not open password protected files** Password protected files are not loaded. No dialogs or messages are displayed.

Default: **Ask for the password on open.**

Convert drawing

The display of DXF / DWG drawings may differ from the display in other CAD programs. This may occur e.g. with line types, text styles, or polylines with assigned widths and bulges. For a display more true to the original all entities may be converted into basic entities like lines, polylines, and splines on import.



The conversion is only advised if the drawing shall be rasterized. Since the conversion produces a large number of entities the import may take a very long time.

Default: **No conversion**

Line widths

VP Software uses absolute line widths, i.e. the display is independent of the zoom scale factor. With some drawings this may result in disproportionately thick entities. In this case use the option **Set all line widths to 0.0**. Alternatively, line widths may be adapted in the Layer Manager after loading.

Default: **Do not convert line widths**

Hatches

Specify a directory where you want to search for hatch pattern styles.

Default: **\\VPxx directory\SUPPORT**

Character Set

You can determine which character set should be applied on import of non-Unicode text. Choose between **Determine character set automatically** (character set saved in the imported file) and **Always use this character set** (pre-defined character set).

Default: **Determine character set automatically**

Measurement

You can determine which measuring unit will be used in the imported file. **Automatic** will assign the unit according to the currently active document (like on Import).

Default: **From file**

DWG/DXF Export Options

DWG/DXF Export Options

On Overwrite of existing files
 Update/append only Raster

File Format
 AutoCAD 2007

Raster
 Do not save Raster
 Save in RasterDWG Format (one file for vectors and raster)
 Save in AutoCAD Format (extra file(s) for the raster)
 Save Raster file(s) automatically.
The raster file(s) will be saved in the directory of the DWG file using the TIF Format. The name of the DWG file will be used as prefix.

Conversion of VP entities
 Export polygons as Hatches
 Polylines

Seedfile
 ...

Character Set
 1252 System

DXF: Floating-point precision
 Automatic: Fit to the actual drawing content.
 User defined: Always use digits.

File Format

Determines in which format DWG or DXF files will be saved.

Default: **AutoCAD 2007 compatible**

Raster

If you want to save raster data you can choose between **RasterDWG** and **AutoCAD** format.

The **RasterDWG** format developed by **softelec** allows to save all raster image data inside **one** DWG file together with all vectors. Otherwise, you have to handle two or more files for one document (the DWG file and the raster file(s)).

The **RasterDWG** format conforms to the DWG specifications. That is why RasterDWG files may be loaded into every standard AutoCAD product, BricsCAD, and ZWCAD. However, you need a **RasterDWG driver** for the corresponding product in order to display the raster data. Otherwise, only empty frames with a message are displayed. This RasterDWG freeware utility is available on your **softelec** product CD and at **www.softelec.com**. Once installed with AutoCAD/BricsCAD/ZWCAD, it allows for viewing and printing of both raster and vector data.

Default: **Save in AutoCAD Format**

Save Raster file(s) automatically generates file names without prompting the user.

Default: **off**

Seedfile

If a **Seedfile** is specified it is opened and its content will be added to the document to be saved. This allows for establishing basic settings, such as grid, limits, coordinate system, or entities (company logos, drawing headers) in all DWG files.

Standard: **void**

Conversion of VP entities

Polygons can be exported either as **Hatches** or as **Polylines** using the option **Export polygons as**.

Default: **Hatches**

Character Set

Determines the file's character set (codepage). The exact setting can be important, e.g. if a file is to be opened on a computer with a different active codepage setting.

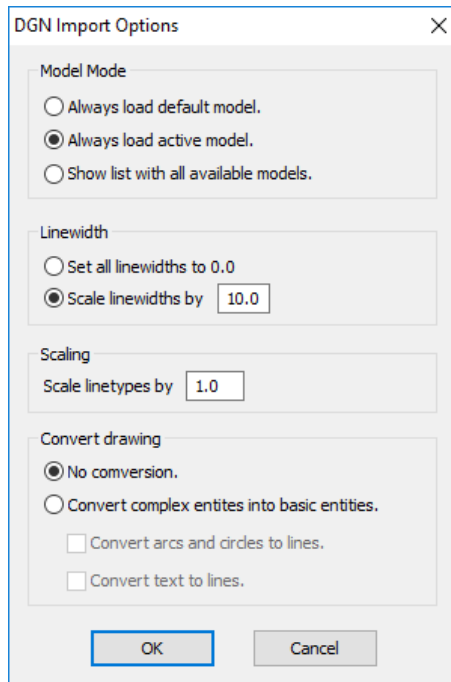
Default: currently active system character set

DXF: Floating-point precision

The number of decimal places can either be set **automatically** according to settings in the current file, or it can be set as **user defined**.

Default: **Automatic**

DGN Import Options



DGN Import Options

Model Mode

Always load default model.

Always load active model.

Show list with all available models.

Linewidth

Set all linewidths to 0.0

Scale linewidths by

Scaling

Scale linetypes by

Convert drawing

No conversion.

Convert complex entites into basic entities.

Convert arcs and circles to lines.

Convert text to lines.

OK Cancel

Model Mode

Determines which DGN file model will be loaded. You can choose between the saved **active model** and a permanent **default model**. You can also choose to display all available models for an individual model selection prior to opening (**Show list with all available models**).

Default: **Always load active model**

Linewidth

VP Software uses absolute linewidth values, i.e. their display depends on the zoom stage. In some drawings this may lead to displaying disproportionate thick elements. In these cases you can use the option **Set all linewidths to 0.0**. All linewidth values can also be adjusted individually in the Layer Manager.

Default: **Scale linewidths by 10.0**

Scaling

VP Software uses absolute length values for linetypes, i.e. their display depends on the zoom stage. In some drawings this may cause details to disappear from the display. In these cases you can change the scaling value accordingly.

Default: **Scale linetypes by 1.0**

Convert Drawing

The display of DGN files in VP software may differ from their display in MicroStation®. This may occur e.g. for linetypes, textstyles, or polylines with specific widths or curves. To ensure a proper display these elements can be converted to basic element structures, such as lines, polygons and arcs.

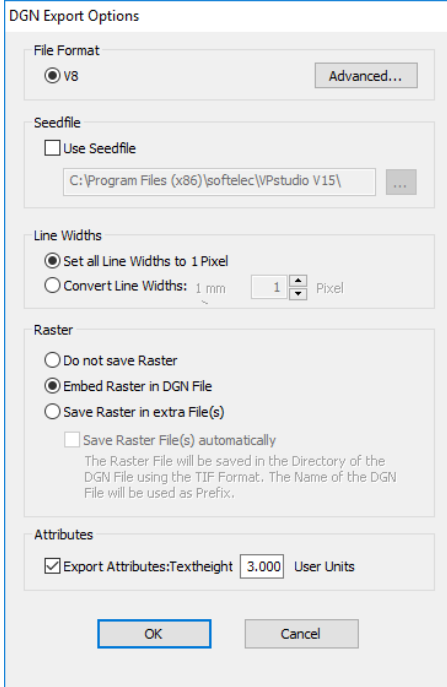


The conversion is only recommended if you want to rasterize the loaded DGN file. The conversion may also cause to generate very many basic elements. Thus, loading the file may take considerable more time.

Default: **No Conversion**

DGN Export Options

The following DGN export options are available in the **Options** dialog.



DGN Export Options

File Format
 V8 Advanced...

Seedfile
 Use Seedfile
 ...

Line Widths
 Set all Line Widths to 1 Pixel
 Convert Line Widths: 1 mm Pixel

Raster
 Do not save Raster
 Embed Raster in DGN File
 Save Raster in extra File(s)
 Save Raster File(s) automatically
The Raster File will be saved in the Directory of the DGN File using the TIF Format. The Name of the DGN File will be used as Prefix.

Attributes
 Export Attributes: Textheight User Units

OK Cancel

File Format

Files can only be saved in **V8 Format**.

Seedfile

Activate and specify if you want to use a specific seedfile.

Default: off

Line widths

Line widths can be changed to a fixed width of 1 pixel or to a specific pixel number per 1mm.

Default: Set all line widths to 1 pixel

Raster

Raster data can be saved in two different ways. Either, they can be **embedded in the DGN file** or they can be **saved in an extra file** as an attachment to the DGN file.

Default: Embed Raster in DGN File

Save Raster File(s) automatically will generate separate Raster files with no user prompting.

Default: **off**

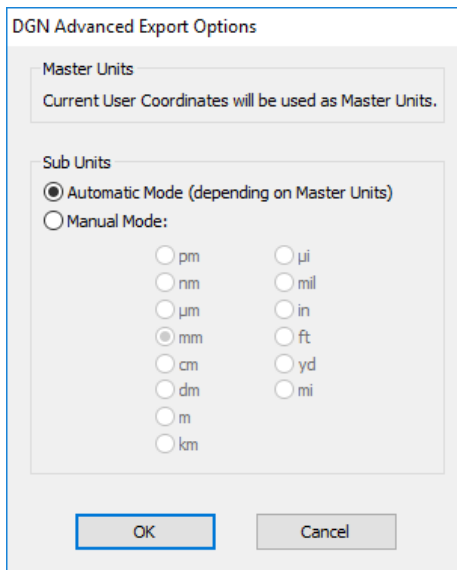
Attributes

Specify whether attributes will be exported as text with the given **Textheight** in user units.

Default: **on; Textheight: 3.0**

Advanced

A dialog opens to determine Master Units and Sub Units:



Master Units always refer to the current User Units. **Sub Units** may be set automatically depending on the Master Units, or you set them individually.

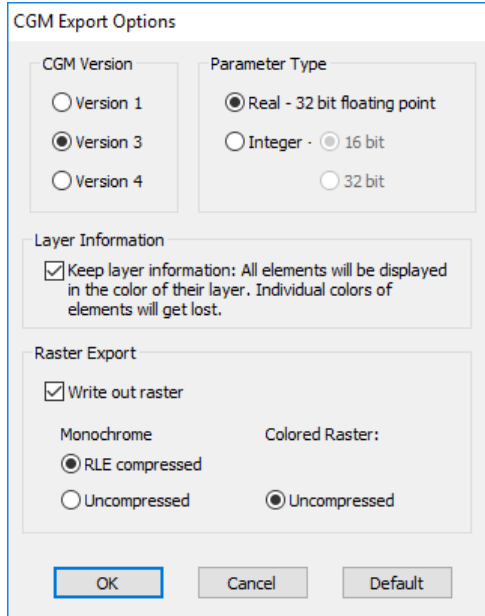
List of automatic settings Master Units – Sub Units:

mm - μ m	in - μ i
cm - mm	ft - in
m - mm	yd - in
km - m	mi - ft
	nm - ft

Default: **Depending on Master Units**

CGM Export Options

To export a CGM file options for **CGM Version**, **Parameter Type** (Precision), **Layer Information**, and type of **Raster Export** within the CGM file can be defined.



CGM Version

Select between **Version 1**, **3**, or **4**.

Default: **Version 3**

Parameter Type

Choose between **Real** (i.e. all data are saved as floating point values, larger coordinate values are possible; this may be necessary if the drawing size is very large) and **Integer** (all data are saved as integer values). With **Integer** either **16-bit** (small drawing size) or **32-bit** (large drawing size or higher precision) can be specified.

Default: **Real**

Layer Information

Since the CGM-format does not contain layer assignment, this setting allows for keeping the layer information of VP Software by the entity color: all elements are assigned to the color of their layer and therefore, can easily be identified in another CGM-program.

Default: **off**

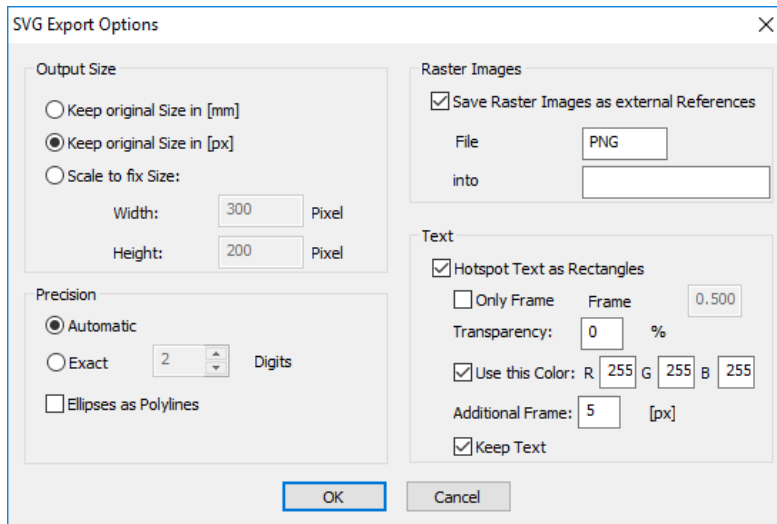
Raster

If **Write out Raster** is **on** the raster data will be saved inside the CGM file. b/w raster can be saved either uncompressed or RLE-compressed; colored raster will always be saved uncompressed.

Default: **off**

SVG/SVGZ Export Options

The following options are available when exporting in SVG/SVGZ format:



Output Size

You can choose between **Keep original Size** in **millimeters** or **pixels** or **Scale to fix Size**. For the latter you can specify custom maximum **Width** and **Height** values.

Default: **Keep original Size (px)**

Precision

Coordinate precision (digits) may be specified either directly (**Exact n digits**), or it may be calculated **automatically** by the program.

Default: **Automatic**

Ellipses as Polylines: Ellipses are exported as polylines.

Default **off**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Raster Images

Raster images can be exported as **external references**, i.e. images will be saved as separate files. The raster name is used as file name. You can specify the **file format** and a **subdirectory** for the files.

Default **off** (= embedded)

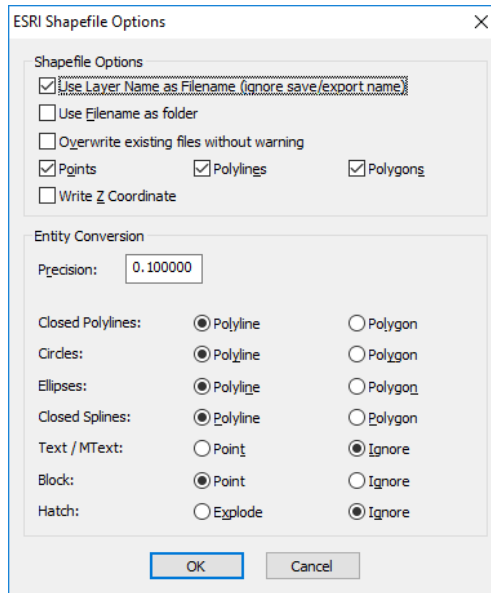
Text

Hotspot Text as Rectangles: Instead of a text a filled rectangle will be exported. You can specify the **transparency**, the **color**, and the width of a **frame** of the rectangle. With **Keep Text**, the text **plus** a rectangle is exported.

Default **off**

SHP Export Options

A dialog opens to define the interpretation of entities, since the SHP format only supports lines/polylines, polygons, and points:



Each shape file can only contain one entity type. Therefore, for each layer and each of these three entities types (if more than one entity type has been assigned to a particular layer) one separate file will be created with the suffix:

- POLYLINE
- POLYGON
- POINT

Shape File Options

The option **Use Layer Name as Filename** means that the specified filename will be ignored and the files will be created at the specified location using the layer names.

Furthermore, you can select which entities you want to export: **Points, Polylines, Polygons**.

If the **Write Z Coordinates** option is turned **on**, all elements will be written as 3D elements.

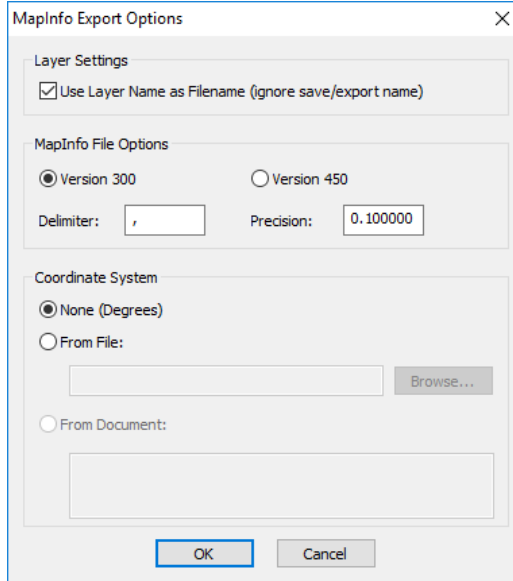
Entity Conversion

The **Precision** defines the maximum deviation between the original entity (e.g. circle) and the converted entity (e.g. polyline).

With the other options you can specify how specific entities like texts or hatches should be treated on export.

MIF Export Options

For generating a **MIF** file options for **Layer Settings**, **File Version**, **Delimiters**, **Precision**, and **Coordinate System** settings can be defined.



The dialog box 'MapInfo Export Options' contains the following sections:

- Layer Settings:** A checkbox labeled 'Use Layer Name as Filename (ignore save/export name)' is checked.
- MapInfo File Options:** Two radio buttons for 'Version 300' (selected) and 'Version 450'. Below are text boxes for 'Delimiter:' containing a comma (',') and 'Precision:' containing '0.100000'.
- Coordinate System:** Three radio buttons: 'None (Degrees)' (selected), 'From File:', and 'From Document:'. The 'From File:' option has a text box and a 'Browse...' button. The 'From Document:' option has a text box.

At the bottom are 'OK' and 'Cancel' buttons.

When saving data to the **MIF** format, the entities of each layer will be saved into a separate file. The layer name will be appended to the specified file name.

Use Layer Name as Filename {on/off}

If this option is turned on, the specified file name will be ignored and the filename will be equal to the layer name.

MapInfo File Options

Select the **Version** (300 or 450) of the **MIF** format.

The **Delimiter** will be used to delimit the data fields in the MID file.

Since the **MIF** format does not support all geometric entities available with VPmap Series products the not supported entities will be converted to polylines (e.g. elliptical arcs). The **Precision** defines the maximum error allowed for this conversion.

Coordinate System

Specify **None** if no coordinate system information should be stored in the **MIF** file. By default these data will then be interpreted as degree coordinates.

Activating the **From File** option allows you to specify a reference file for the coordinate system. The coordinate string from this file will be displayed in the dialog. It is possible to modify the string in the dialog.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Scan



Toolbar: **Scan**

Menu: **File ▶ Scan**

CMD: **VPSCAN ▶ Dialog**

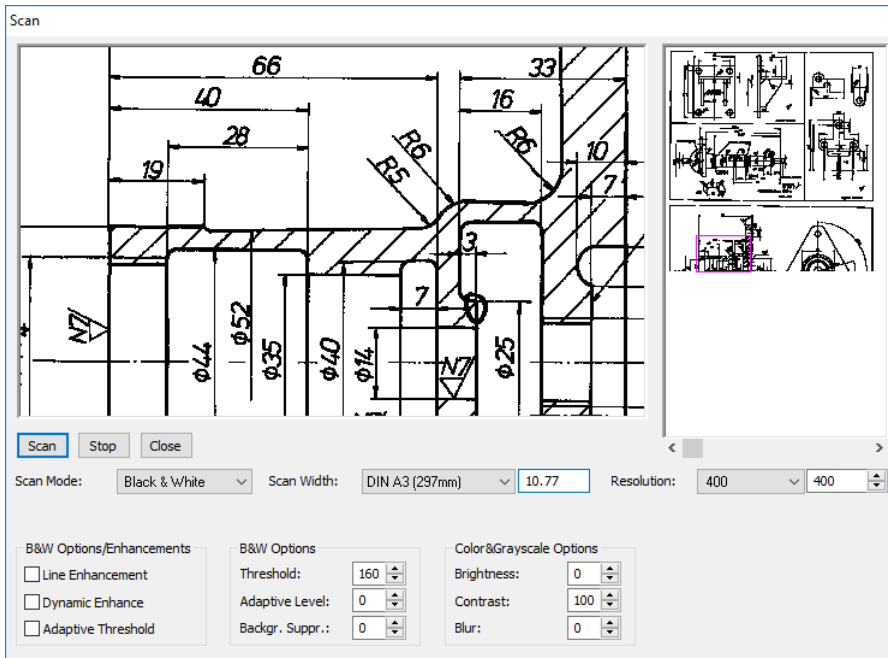
CMD: **VPSCAN [L|Lastscanner]**

This function allows for operating connected scanners either using a **TWAIN Interface** or by the built-in **Large Format Scanner Interface**. Major large format scanners can be operated directly from within the program. Depending on the type of scanner a corresponding dialog box opens to enter the essential parameter settings according to the respective scanner's specifications. For more information regarding supported scanners see the **Appendix**. If more than one scanner is attached you can select the desired scanner from the upcoming dialog.

L|Lastscanner The dialog for the scanner selection is suppressed.

Scanners controlled by the TWAIN interface have individual user interfaces for setting-up and operating the scanner. If a TWAIN driver is available on system level (i.e. installed and activated) then VP Software will offer to operate this scanner.

Using the built-in large format scanner interface the following dialog appears:



Scanner Dialog for Large Format Scanners

Functions

Depending on the connected scanner, the software supports the following scan modes:

- Black/White
- Grayscale
- Color (Indexed, 256 colors max.)
- Truecolor

All other options will be activated or deactivated according to the specifications of the connected scanner device.

The upper area of the dialog is divided into two areas:

Left window: Display of an area of the scan in 1:1. Use the slider of the right window to specify the horizontal position of the area.

Right window: Overview window: a small frame indicates which area is currently displayed in the left window.

Buttons:

Scan	Start scan.
Stop	Stop scan.
Close	Close scan dialog.

General Functions:

Scan Mode	Sets the current scan mode (b/w, gray scale, and color).
Scan Width	Depending on scanner type: Format and/or Variable With CalComp, Océ, Context scanners: Variable: paper is left or right aligned (0 position) Format: paper is centered Scan Width is set according to scale (units) on scanner.
Resolution	Depending on scanner type: fixed and/or variable.
Append Page	The image will be appended as a new page to the current document.
Palette	Scan using a previously generated palette (only in color mode).

Black/White Options:

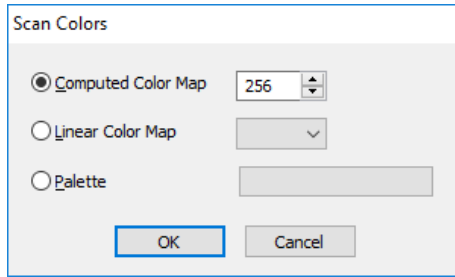
Depending on the scanner type the following functions are available:

Line Enhancement	Increases the line thickness.
Dynamic Enhance	Increases the contrast.
Adaptive Threshold	Threshold depending on Area.
Threshold	Standard threshold (0 - 255).
Adaptive Level	Contrast threshold (0 - 100).
Background Suppression	Suppression of speckles (0 - 100).

Color and Grayscale Options:

- Brightness** Range: -128 - 128.
- Contrast** Range: 10 - 1000 (in %).
- Blur** Filter to reduce dithering in color scans : 0 - 3.

When executing a 256 color scan, the following dialog box appears after pressing **Scan**:



- Computed Color Map** The system performs a prescan to calculate an optimized palette for the current drawing. The palette size can be selected between 4 and 256 colors.
- Linear Color Map** A standard palette will be used for the scan. The palette represents the whole color space. 8, 16, 27, 125, 216 and 256 colors can be selected.
- Load Palette** Load a specific palette (*.VPL) which has been previously generated (by Save Palette).

Description of Terms

Different manufacturers use different terms for the same functions of their scanners. The following table shows the terms used by VP Software and their equivalents:

VP Software Dialog	Scanner Function
Adaptive Threshold	Adaptive Area Threshold 2D-Adaptive Threshold
Adaptive Level	Area Brightness
Background Suppression	Variability
Line Enhancement	Edge Enhancement
Dynamic Enhancement	Dark Enhancement

Print [Ctrl + P]



Toolbar: **Standard**

Menu: **File ► Print**

CMD: **VPPRINT ► Dialog**

CMD: **VPPRINT [/VPP <VALUE>] [/P <VALUE>] [/FT|FROMTO <FROM PAGE> <TO PAGE>]
 [/BW] [/MP] [/MR] [/SLW] [/CW <VALUE>]
 [/S|SCALING <SCALING><X-OFFSET><Y-OFFSET>] [/V|VIEW]
 [/W] [/WIN|WINDOW <STARTX><STARTY><ENDX><ENDY>] [/C|COPIES <VALUE>]**

CAD: **_plot ► Dialog**

Any printer or plotter device installed under the operating system may be used for printing raster and/or vector data. However, the capability of processing raster data not only depends on the printer/plotter model, but also on the installed Windows drivers. A dialog box opens to determine **scale**, **offset**, **paper format**, and **printing area**. Raster and/or vector data can be selected for printing according to the monitor screen display.

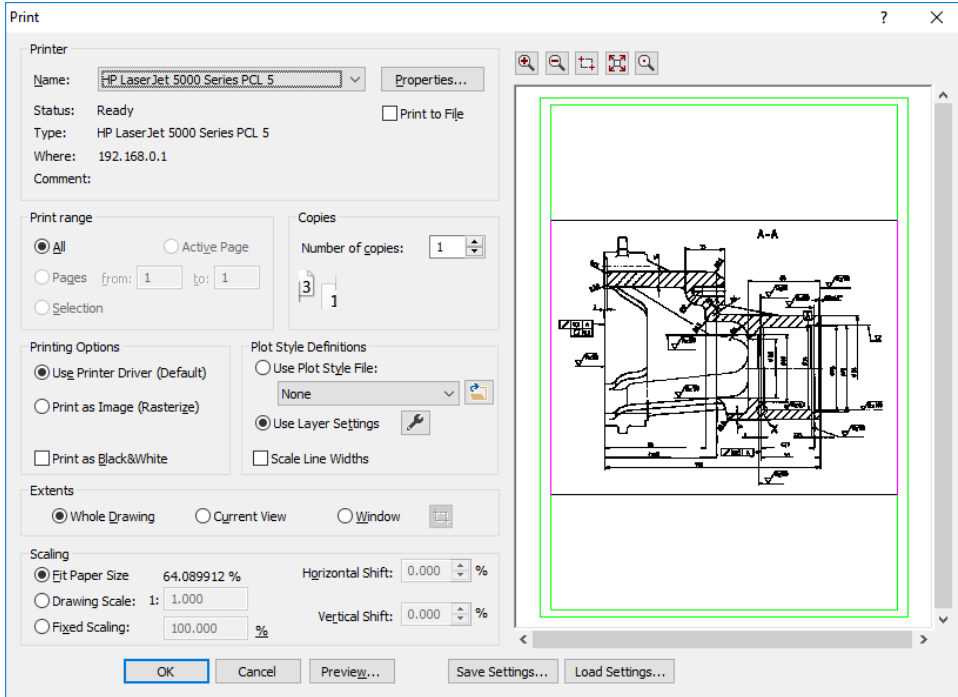
Using the command line:

```

/vpp <value> Settings file (if set, all other values will be ignored)
/p <value> Printer Name
/f <value> Output Path
/ft <value> Page Range to Print (negative values for active page)
/bw Print as Black&White
/mp Use Printer Driver
/mr Print as Image (Rasterize)
/slw Scale Line Widths
/cw <value> Width Table File
/s <value> Scaling and Offset
/v Print View
/w Whole Drawing
/win <value> Window
/c <value> Number of Copies
  
```

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Without command line parameters, the printer dialog opens for selection and specification. When the command line is used the last used printer is selected:



Select the **Print Range** and the number of **Copies**. Other options are:

Extents

Choose between **Whole Drawing**, **Current View**, or **Window**. For the latter check the button right to the **Window** option and set a window with two click points in the preview area. The selected window area will be displayed with a red frame.

Printing Options

Choose between **Use Printer Driver** (default setting) or **Print as Image**. If you encounter problems when printing hybrid data (i.e.. a mix of raster and vector data) or with large formats due to limitations of the standard printer driver use the option **Print as Image**. Then, **VPHybridCAD** rasterizes all entities into a temporary plot file and sends this file to the printer/plotter. Use the option **Print as Black&White** to print color vector data on black&white printer with a better quality.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Plot Style Definitions

To control printing colors and line widths either the **Layer Settings** for printing or a **Plotstylefile** may be specified. Supported plot style files are AutoCAD CTB or user generated RTB files. The settings can be reviewed and changed using the modify button.

With the option **Scale Linewidths** vector linewidths will be printed with a scaling factor set in **Scaling**. Without this option linewidths will always be printed according to their settings.

Scaling

Allows for arranging the image size according to user demands in terms of scaling and offset. With **Fit Paper Size** the selected **Extents** will be scaled to fill the entire paper space. **Drawing Scale** and **Fixed Scaling** will scale elements in the selected extents with the given factor or percentage.

Preview Area

The preview area's display can be adjusted with the buttons on top of the dialog. A green frame display the printer's current paper settings. The outer frame refers to the paper extents while the inner frame refers to the print space. When **Fit Paper Size** is switched off the paper extents position can be moved with the mouse. When releasing the mouse button the move values will be updated. The zoom factor can be changed with the mouse wheel.

Save Settings

Save the actual printing settings including the printer and its properties. The file format for print settings is **VPP**.

Load Settings

Load a previous saved print settings file (**VPP**).

Print Preview

Menu: **File ► Print Preview**

CAD: **_preview ► Dialog**

The **Preview** option allows for previewing print results to support an accurate positioning.

Print Setup

CMD: **VPPRINTSETUP ► Dialog**

CAD: **_plottermanager ► Dialog**

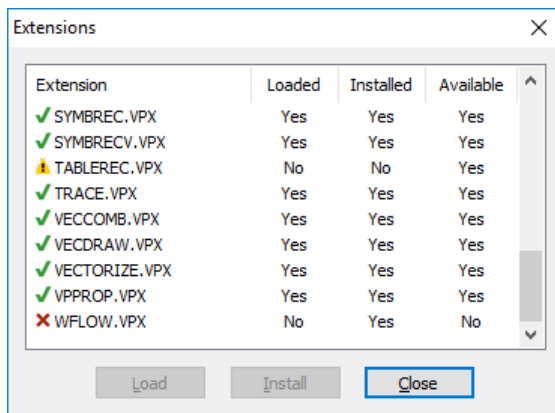
A printer/plotter can be selected and activated.

Load Extensions

Menu: **File ► Extensions**

CMD: **VPEXTENSIONS ►** Dialog

Loads the software extensions to the program. A dialog box opens, listing all available extensions and showing their status. An extension can be loaded and installed (activated for use). The program usually loads and installs all necessary extensions:



Exit

Menu: **File ► Exit**

CMD: **VPEXIT**

CAD: **_exit**

Exits the program. If there is modified data in memory which you have not saved yet, a box opens asking you to save before the program terminates.

Plot Style Settings (only Windows)

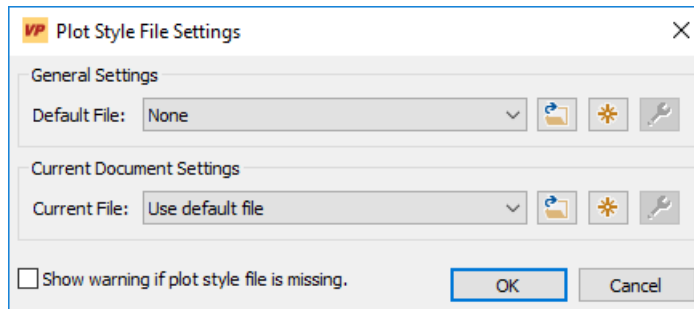
Menu: **Options ► Plots Style Settings...**

CMD: **VPLOTSTYLE ► Dialog**



This command may also be started by the **Plot Style View**-Icon while the **[Ctrl]** is pressed.

Plot style files are used to adjust colors and line width for printing and plotting. With **Options Plot Style Settings** the usage of plot style files can be configured. The following dialog will open:



A general plot style file for all documents can be **selected**, **created**, or **modified** in the **General Settings** section. Valid plot style files are AutoCAD CTB files or VP generic RTB files. In case of CTB files the VP software will only interpret the color and line width information.

Default: None

The **Current Document Settings** section shows the settings for the active document. When opening a DWG file which is linked to a CTB file, this CTB file (if found) is automatically loaded.



In case that the CTB file is not found in the directory of the DWG file or in the path for **Support** and **SHX Font File** as specified in the **Systems Settings** (see further down in this chapter) and **Current File** is set to **Use default file**, the default file is automatically loaded.

When **Show warning if plot style file is missing** is activated a corresponding message will be displayed.

Default: Use default file

Create a new plot style file



Click this button to create a new plot style file. The **Color Data** dialog will open that allows to define for each color a **Width** and **Print Color** (see also **chapter 4: Color Manager**). The defined width values from the current document will be used.

View / modify plot style file



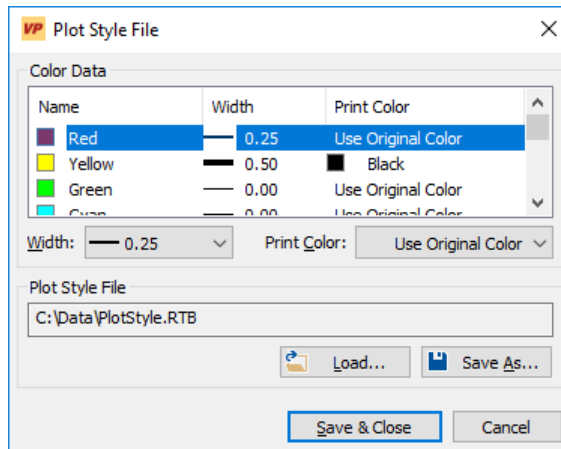
The **Color Data** dialog will open with the specified Valued (**Width** and **Print Color**) from the selected plot style file (see also **Chapter 4: Color Manager**).



Changes can only be saved to the VP generic RTB format.

When choosing a new file name for saving, the **Default file** or **Current file** is automatically updated.

Modify Plot Style



The dialog displays the colors from the loaded plot style file. A **Width** and a **Print Color** is assigned to each color. The settings may be modified for single or multiple selections of colors. With the width **By Entity** all entities of this color are displayed with their original width (width either from entity or the one specified in the layer settings)

Width and **Print Colors** can be loaded from and saved to plot style files. Use **Load** to import these values from a **CTB** or **RTB** file. With **Save As...** the current settings can be saved to a **RTB** file.

With **Save & Close** the changes will be confirmed and saved to the selected plot style file.



In case the original plot style file is an AutoCAD **CTB** file, the **Save as...** dialog will open, since only the **RTB** format is supported for writing.

System Settings

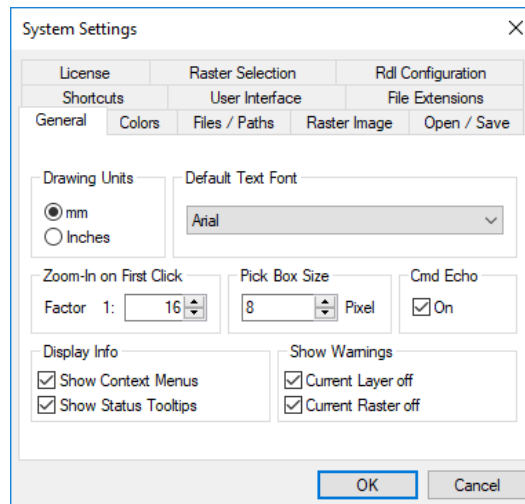
The system settings define the general operation environment of your program.

Menu: **Options ► System Settings**

CMD: **VPSYSTEMSETTINGS ► Dialog**

A dialog box opens to define the system's general setting values.

General Tab



Drawing Units

Choose either **mm** or **inches**. The drawing units you select determine how the raster image will be interpreted in terms of units of measure. The units have an effect on the X/Y coordinate system and on all depending values and parameter settings.

Default: **mm**

Default Text Font

Selection of the **default text fonts** for text style creation. All existing and scaleable **True Type Fonts** in your Windows system are available.

Default Font: **Arial**

Zoom-In on First Click

This option controls the automatic zoom for commands that use the "triple frame" cursor, e.g. the **VPDESKEW** command.

Default: 1:16

Pick Box Size

This setting controls the size of the cursor square box (in pixels of the monitor screen) used when elements are selected (pick area). It also defines the grip size of the selected entities.

Default: 8 [pixels]

Cmd Echo {on/off}

Set to **on** the command name is displayed in the command line window whenever the command is started via menu or toolbar button.

Default: on

Display Info

Show Context Menus

When set to **on**, the default context menu appears when clicking with the right mouse key. The default context menu will be replaced by other special menus, depending on the active function.

Default: on

Show Status Tooltips

When set **on** status messages will be displayed as tooltips next to the mouse cursor.

Default: on

Show Warnings

Current Layer off

When set **on** a warning will come up upon switching off a current layer setting.

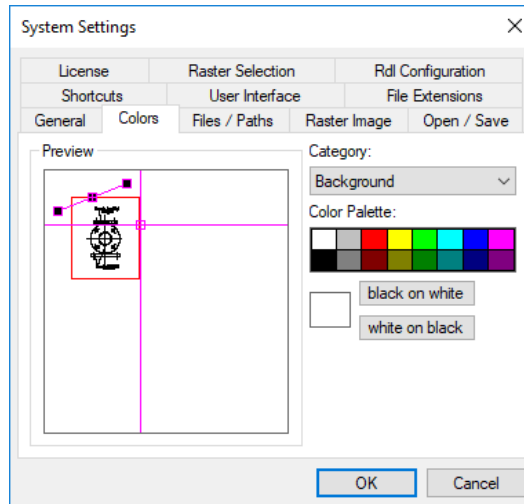
Default: on

Current Raster off

When set **on** a warning will come up upon switching off a current raster setting.

Default: on

Colors Tab

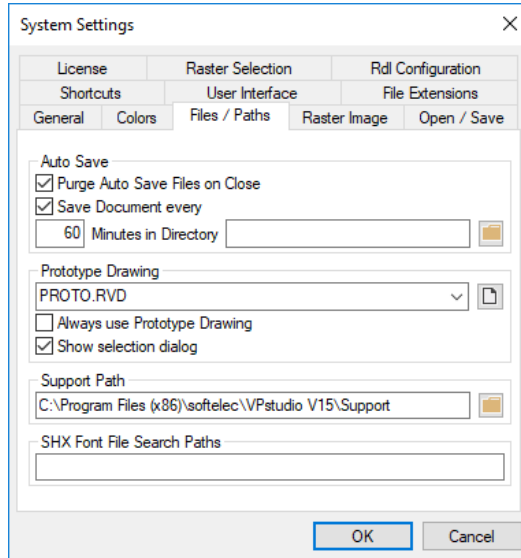


Some of the screen colors can be defined individually:

Category:	Screen color: white on black	Screen color: black on white
• Window Background	(black)	(white)
• Cursor	(green)	(black)
• Active Image Border	(red)	(red)
• Raster Selection	(red)	(red)
• Speckles	(green)	(green)
• Raster Holes	(red)	(red)
• Move Grip	(black)	(white)
• Other Grips	(black)	(white)

The **System Default** values (in brackets) can be reactivated when clicking on the **white on black** or **black on white** buttons.

Files / Paths Tab



Auto Save {on/off}

While working with the program an automatic save of open documents will occur at selectable intervals. You can specify the **Interval** and the **Drive** and the **Path** for the **Auto Save** individually.

Default: on
Default Directory: no entry = document's current directory

For the auto save operation the system uses the filename of each document extended by "_ " (underscore) + numbering. The extension is **RVD**. Sample: **ARCH.TIF** will be auto saved as **ARCH_0157.RVD**

Default interval: 60 [minutes]

Purge Auto Save Files on Close

If you set purge auto save files on close to **on** the system will delete all auto save files on closing a session.

Default: off



We strongly recommend not to switch off **Auto Save**.

Prototype Drawing

With a Prototype Drawing you can create documents according to your needs.

The prototype drawing is a RVD file, which is preloaded with every new document (**Open** or **New**). The prototype drawing may contain predefined objects like layers, line types, text styles, or block definitions. It may also contain visible entities like a drawing frame. For different kind of projects you may use different prototype drawings.

A new prototype drawing is created in two steps:

1. Create an empty document or open an existing prototype drawing. Then adjust/create layers, line types, user units, etc. to your need. Save this document in the internal RVD file format.
2. Specify this RVD file in the according edit field or use the **Browse** button to search for it.

Default: \<VP directory>\SUPPORT\PROTO.RVD



By default the prototype drawing is only preloaded on **New** or on **Open** of a pure raster file or with a PDF file. With file formats that contain also layers, line types, etc. the prototype drawing is not preloaded, unless you have explicitly activated the switch below.

Always use Prototype Drawing: If **on** the prototype drawing is preloaded with every **Open**, regardless of the file format.

Standard: **off**

Show selection dialog: If **on** the **New** command will show a dialog to select a specific prototype drawing.

Standard: **on**

Support Path

The directory of files containing parameters, prototypes, and other auxiliary information.

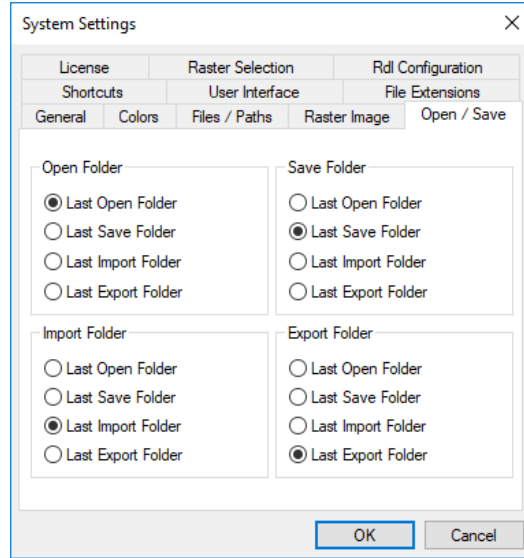
Default directory: \VPxx directory\SUPPORT

SHX-Font File Search Paths

These directories are used by the software to search for SHX font files. The AutoCAD/BricsCAD/ZWCAD system paths (if existent) are registered here upon installation of the software.

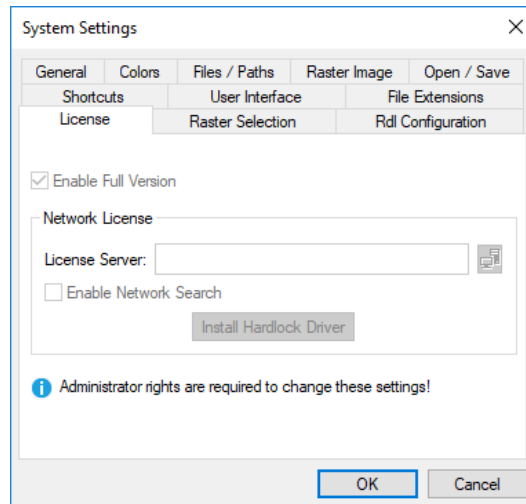
Standard: If existent: **CAD system paths**; else: **Empty**

Open / Save Tab



You can specify which folder you want to use as a standard for open, import, save and export.

License Tab



■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Enable Full Version {on/off}

Activates a VP Software full version product permanently. Otherwise, the software operates in demo mode and will not search for a license (hardlock).

If you have your VP Software installed as **Network License(s)**, enter the **Server Name** to search for an available license or browse for the server computer.

Get a Trial License

Opens a dialog that either prepares an e-mail to apply for a Trial License or to activate the returned license. With this Trial License your Demo Version runs temporarily as a full version.

Enable Network Search {on/off}

If set to **on**, the whole network will be scanned for a valid VP Software **Network License**, if no license can be found at the predefined location. This operation may take some time.

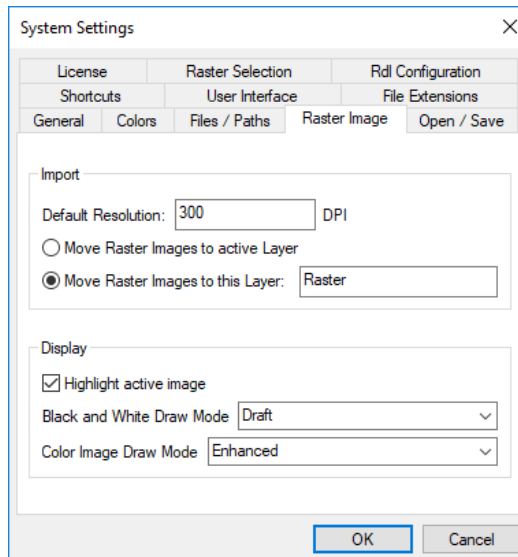
Install Hardlock Driver

If the proper driver for the hardlock (Sentinel or Hasp) is not yet installed, the button **Install hardware lock driver** is active. Click on the button for driver installation.



To modify these settings administrative rights are required! To start **VP** in administrative mode use right mouse click on the **VP** start icon and select the "Run as Administrator" option. Installation of the hardlock driver always requires administrative rights.

Raster Image Tab



Default Resolution

If a loaded/imported raster image does not contain a valid resolution (DPI) a standard value will be set.

Default: **300 DPI**

Move Raster Images to active Layer {on|off}

The currently active layer will be assigned automatically to a new loaded/imported raster image.

Default: **off**

Move Raster Images to this Layer {on|off}

The named layer will be assigned automatically to a new loaded/imported raster image. The layer will be created automatically if it has not been created before.

Default: **on, Raster**

Highlight active image {on|off}

The active raster image will be highlighted with a colored frame. The frame color can be defined in the **Colors** tab.

Default: **on**

Black and White Draw Mode

The options are **Draft** and **Enhanced**. With **Enhanced** a B&W image is displayed on the screen as gray scale image. Depending on the zoom state thinner lines are faded out. Single pixels and small objects might disappear at all. In **Draft** mode a "black wins" algorithm is used ensuring that almost all pixels and thin lines are displayed. Enlarging to 1:1 or more will always display all pixels from the raster image.

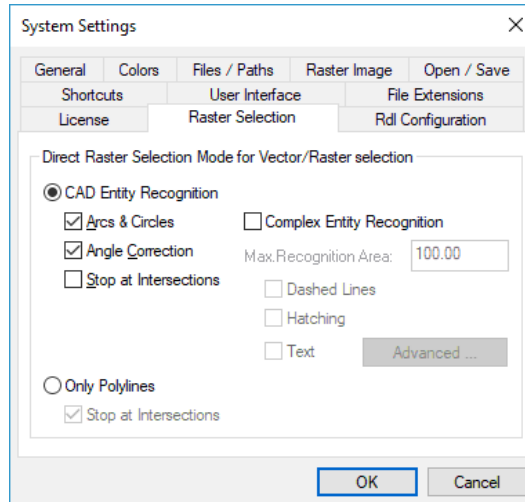
Default: **Draft**

Color Image Draw Mode

The options are **Draft**, **Enhanced** and **Proof**. These display methods differ in speed (**Draft** = quick, **Proof** = slow) and a better visibility of details in small scaled views or zoom extends (**Enhanced** and **Proof**).

Default: **Enhanced**

Raster Selection Tab



This tab controls how entities are created when using the **Direct Raster Selection**. For more details on **Direct Raster Selection** see Section 4.

CAD Entity Recognition {on/off}

If switched on the **Direct Raster Selection** tries to generate CAD Entities. Depending on the additional settings these can be arcs, circles, lines, or more complex entities.

Default: **on**

Arcs & Circles {on/off}

If switched on the **Direct Raster Selection** tries to generate arcs and circles.

Default: **on**

Angle Correction {on/off}

Corrects small deviations at 0 and 90 degrees.

Default: **on**

Stop at Intersections {on/off}

Entities are only recognized up to the next intersection with other elements.

Default: **off**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Complex Entity Recognition {on/off}

If switched on the **Direct Raster Selection** tries to generate complex entities like dashed lines, hatchings, or text. This can be controlled in more detail with the options describes below.

Default: **off**

Max. Recognition Area

The area range in the drawing that is examined to find complex entities. The larger the value, the more processing time will be needed to find entities. The value (in base units) is the edge length of a square which is centered around the click point. Only entities that are completely inside this square will be considered.

Default: **100 [mm] or 3.937 [inch]**

Dashed Lines {on/off}

If switched on the **Direct Raster Selection** tries to generate dashed lines.

Default: **off**

Hatching {on/off}

If switched on the **Direct Raster Selection** tries to generate hatchings.

Default: **off**

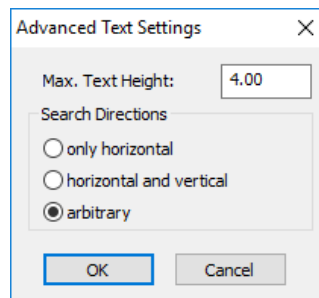
Text {on/off}

If switched on the **Direct Raster Selection** tries to generate text while the text settings can be changed using the **Advanced** button.

Default: **off**

Advanced

A dialog opens which controls text search details:





Max. Text Height

Defines the maximum size of isolated structures to be processed during entity recognition. Choose a maximum text height for searching text structures up to the specified height.

Default: **4 mm, 0.157 inch**

Search Directions

The search for different text orientations can be limited. With more active options the text interpretation process will take longer respectively.

Search Directions are:

- Only Horizontal
- Horizontal and Vertical
- Arbitrary

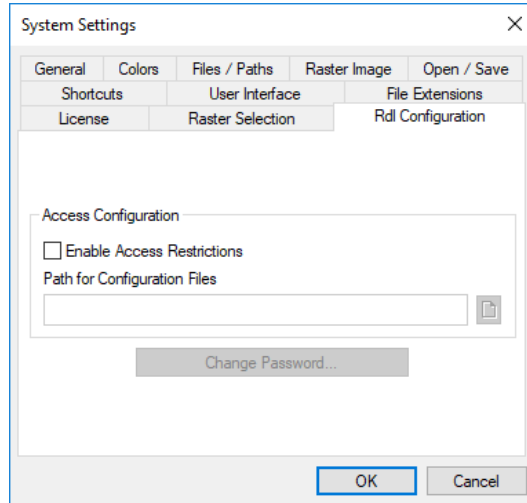
Default: **Arbitrary**

Only Polylines {on/off}

If switched on the **Direct Raster Selection** tries to generate only polylines which stop at intersections.

Default: **off**

Redlining Configuration Tab



Enable or disable access restrictions.

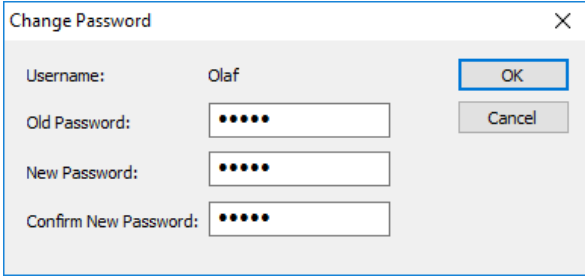
Enable Access Restrictions

If **Enable Access Restrictions** is activated the path to the redlining configuration file is required. Then, a logon to the redlining session using **user name** and **password** is required.

VPstudio VPraster VPmap pro
 VPstudio mono VPraster edit VPmap
 VPlite

Change Password

Clicking **Change Password** opens a dialog box to modify the password for redlining.

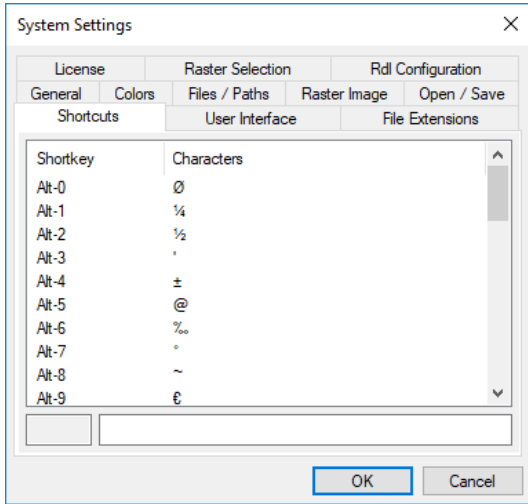


The 'Change Password' dialog box contains the following fields and controls:

- Username:** Olaf
- Old Password:** [Masked with 5 dots]
- New Password:** [Masked with 5 dots]
- Confirm New Password:** [Masked with 5 dots]
- Buttons:** OK, Cancel

VPstudio VPraster VPmap pro
 VPstudio mono VPraster edit VPmap
 VPlite

Shortcuts Tab



The 'System Settings' dialog box, 'Shortcuts' tab, displays a table of default shortcuts:

Shortcut	Characters
Alt-0	Ø
Alt-1	¼
Alt-2	½
Alt-3	'
Alt-4	±
Alt-5	@
Alt-6	%
Alt-7	°
Alt-8	~
Alt-9	€

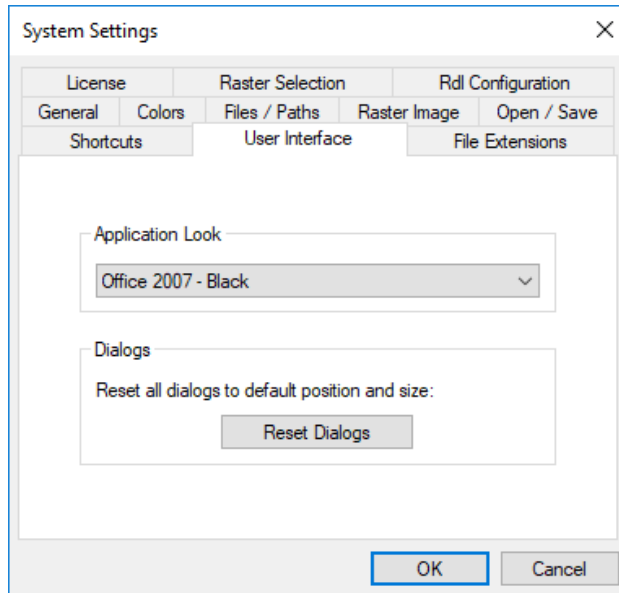
Buttons: OK, Cancel

For frequent insertions you can define up to 35 ASCII character strings as character shortcuts, especially those which are not available from a direct keyboard entry. Use the Windows character map (CHARMAP.EXE) for selection. Use **[Alt + 1] - [Alt + 9]** and **[Alt+A] - [Alt+Z]** while entering or correcting text strings to insert these special characters.

Also, shortcuts are helpful for supporting quick insertion of repeatedly used text strings, prefixes, suffixes, etc.

Default shortcuts: see Dialog Box above

User Interface Look Tab (only Windows)



Select Scheme

Here you can change the look of the User Interface. Several designs are offered for selection. Depending on your Windows version the User Interface may look slightly different from the displayed preview.

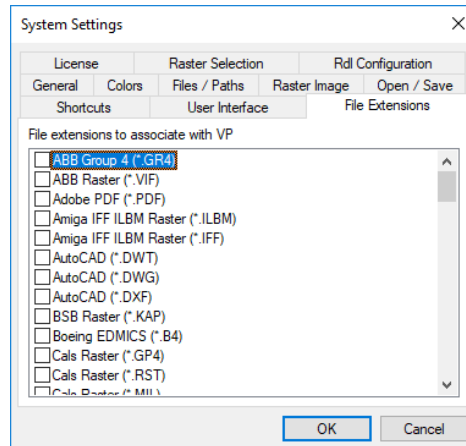
Reset Dialogs

All dialogs will be resetted to their default size and position. Use this function if some dialogs do not appear on the screen e.g. in case of a monitor switch.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

File Extensions (Windows only)

Here you can specify which file types will be associated with VP. If checked, the Windows Explorer shows these kinds of files with a VP- Icon and starts VP to load the file when double-clicked.

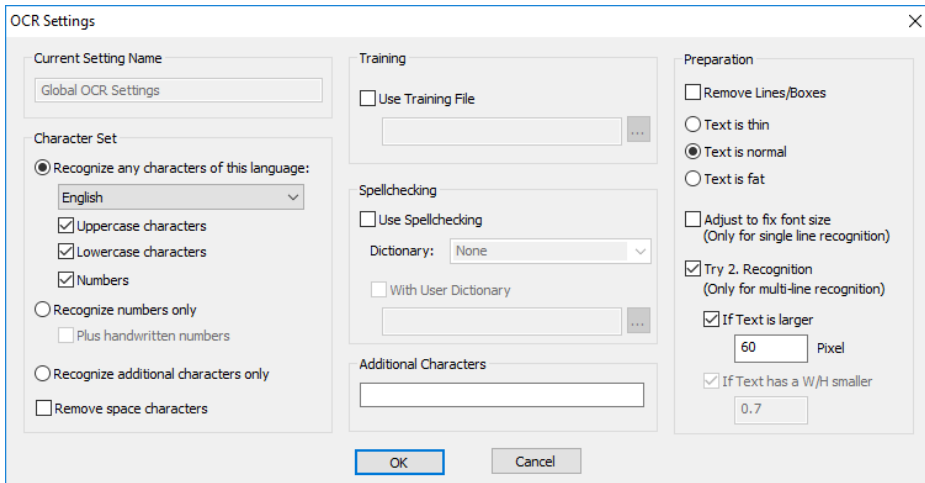


OCR Options

Menu: **Options ► OCR Options**

CMD: **VPSHOWOCRDIIALOG**

The following dialog opens:



Character Set defines the recognizable characters and/or numbers.

The text recognition may be adjusted to the specific content of a drawing. These options are available:

Recognize any characters of this language {on/off}

Characters of the selected language are to be recognized. Upper case and lower case characters and numbers can be distinguished additionally.

Default: **on, English**

Recognize numbers only {on/off}

Only numbers are to be recognized. As an option, a separate recognition for **Handwritten numbers** can be used.

Default: **off**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Recognize additional characters only {on/off}

Only characters, special characters and numbers defined in **Additional Characters** are to be recognized.

Additional Characters

All characters, special characters and numbers defined here are to be recognized in addition to those characters defined in **Character Set**.

Default: none

Text in Boxes

If checked the program tries to filter any lines around or in between the text to recognize.

Default: off

Remove space characters

All gaps between characters which are recognized as space characters will be deleted.

Default: off

Use Training files {on/off} (for non-Asian languages only)

With OmniPage Professional (not part of the VP software) training file (*.otn) can be generated. This can improve the recognition rate of specific characters that appear in similar documents.

Use Spell checking {on/off} (for non-Asian languages only)

For the following languages dictionaries are available:

German (**R_GER**), English (**R_ENG**), Italian (**R_ITA**), Spanish (**R_SPA**), Catalan (**R_CAT**), French (**R_FRE**), Netherlands (**R_DUT**), Portuguese (**R_POR**), Danish (**R_DAN**), Swedish (**R_SWE**), Norwegian (**R_NOR**), Finnish (**R_FIN**), Greek (**R_GRE**), Polish (**R_POL**), Hungarian (**R_HUN**), Czech (**R_CZH**).

With User Dictionary {on/off} (for non-Asian languages only)

In addition individual dictionaries can be used. A user dictionary is a simple text file with a single word in one line followed by the character "A" in the next line.

In case that the **Spell checking Dictionary** is set to "None" only the **User Dictionary** will be used.



Remark: Even with Training files or the use of dictionaries the OCR might produce wrong results. The OCR uses multiple criteria to evaluate its results and terms, which look similar to words in the dictionary but might still interpret them wrong.

Remove lines/boxes

Useful for forms with boxes for each character. If **on**, these boxes will be removed before the recognition is performed.

Default: **off**

Text is thin/ normal/ fat

Specify whether text is **thin**, **normal**, or **fat**.

Default: **normal**

Adjust to fix font size (only for single line recognition)

The raster text is automatically scaled to an optimal text height for the OCR engine. This option is also useful if the texts is broken or has low placed characters like an underscore. For Asian languages this option should be always **on**.

Default: **off**

Try 2. Recognition (only for multi-line recognition)

If Text is larger n Pixel (for non-Asian languages only): If the recognized characters are larger than the specified size, the text will be downscaled and a second recognition will be performed. The best result will be used.

If Text has a H/W smaller than <value> (for Asian languages only): If the recognized character width to height ratio is smaller than the specified value, the text will be upscaled and a second recognition will be performed. The best result will be used. This may improve the recognition of Asian half-width fonts.

Default: **off**

Size: **60 Pixel**

H/W: **0.7**

Symbol Library

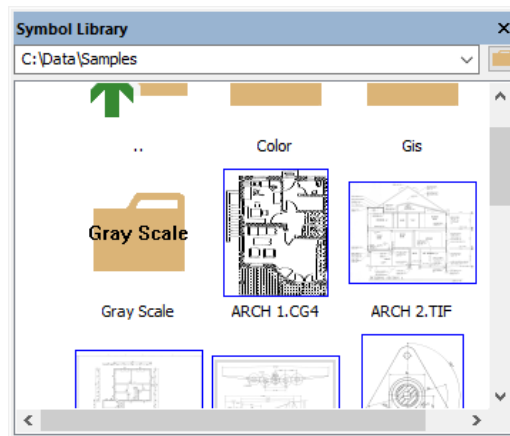


Toolbar: **Symbol Library**

Menu: **Edit ► Symbol Library Manager**

CMD: **VPSYMBLIB**

The following dialog opens:



You can read data from any directory of your hard disk and load accessible files into the library manager. With **Drag & Drop** symbols, blocks, or even complete drawings can be copied from the symbol library into a document and vice versa. Symbol Library display options and modes can be set in the menu **Options ► Symbol Library Configuration**.



Search and select the directory from where you want to load data into the **Library Manager**. The folder history list displays a maximum of 20 entries.

Wildcards can be used to preview only files which match a specified name pattern. For example, if you want to see only files that start with the character "b" you can use wildcard patterns like **b***, **b*.***, **b*.tif**, ***.tif**, etc. (according to standard conventions).

All formats accepted by VP software can be loaded.

Folder symbols in the upper left corner indicate vector drawings containing blocks and multipage files. Use double-click or select **Show Blocks** from the context menu to display these block definitions or pages respectively.

Functions

Drag & Drop

Import a file with a left mouse click in the Symbol Library and dragging the file into an existing document. The file will be opened in a separate window when dragging it onto a toolbar or when no document has been opened. Files may also be dragged and copied into a Windows Explorer folder; with holding **[Shift]** files will be moved.

To add individual elements from a document to the Symbol Library select them and click on any position, however, by avoiding an element grip. Wait until the cursor changes to Drag & Drop mode. Now, drag the element into the Symbol Library (file format is always the internal RVD). A file name will be assigned automatically. To change the file name click the file with the right mouse button and use **Rename** from the context menu .

Copy (only Windows)

The clipboard provides a convenient way to exchange files, especially when a specific file needs to be used several times in sequence. Click the file with the right mouse button and **Copy**. The file may then be inserted multiple times with **Edit ► Paste**.

Data from the clipboard may also be added from the context menu with **Paste** to the current Symbol Library folder.

Paste

A double left mouse click in the Symbol Library will insert a file to the active document. There are three different modes which can be defined in the Symbol Library Configuration.

Delete / Rename

Files can be renamed or deleted directly. Click the right mouse button on the respective file and select the command from the context menu.

Show Blocks

In vector drawings this context menu command will display all block definitions of the respective file. In case that the selected file is a multi page document all pages are displayed.

Symbol Library Configuration



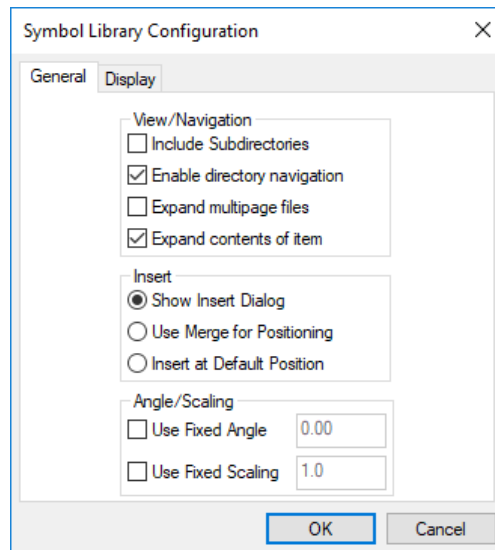
Toolbar: **Symbol Library**

Menu: **Options ► Symbol Library Configuration**

Context menu: **Symbol Library Configuration**

CMD: **VPSYMBLIBCONFIG**

General Tab



View/Navigation

Symbols with a folder symbol attached to the upper left corner will not be inserted on a double click. Instead, the content will be displayed like in a subdirectory. In general, this will happen with multi-page files or with block definitions.

With the option **Include subdirectories** all files in a subdirectory of the current Symbol Library folder will be displayed.

Default: **off**

The option **Enable directory navigation** displays the superior directory and all existing subdirectories with a folder symbol. With a double click the selected directory will become the new Symbol Library folder.

Default: **on**

When switched **on** the option **Expand multipage files** displays an individual symbol for each page of a multi page document.

Default: **off**

The option **Expand contents of items** displays a folder symbol in the upper left corner of a document when block definitions or more than one page are contained.

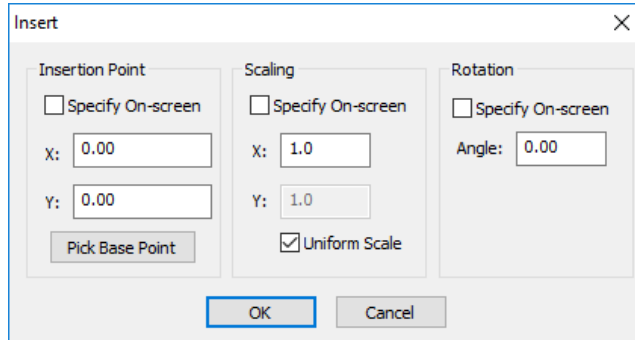
Default: **on**

Insert

These options provide control of how files are inserted with a double click.

When **Show insert dialog** is switched **on** the insert dialog will appear.

Default: **off**



With **Use Merge for positioning** the Merge command will be started and completed for the selected file, i.e. it will be merged with the document's active raster image.

Default: **off**

With **Insert at default position** the selected file will be placed according to the contained placement information in the file.

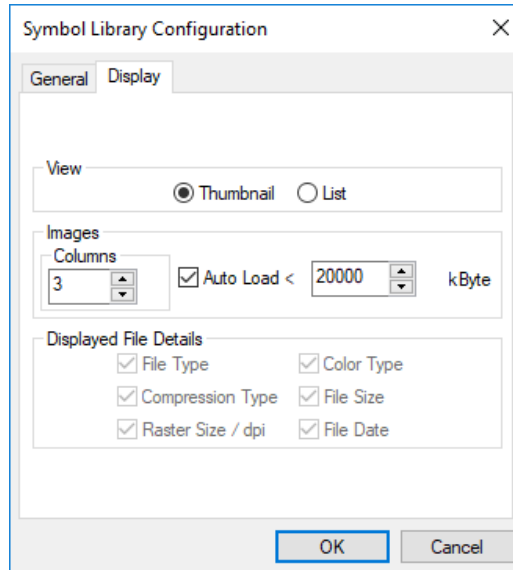
Default: **on**

Display Tab

Thumbnail / List

The display mode can be switched between **Thumbnail** and **List**. **Thumbnail** will provide an image preview, **List** will provide file information in detail.

Default: **Thumbnail**



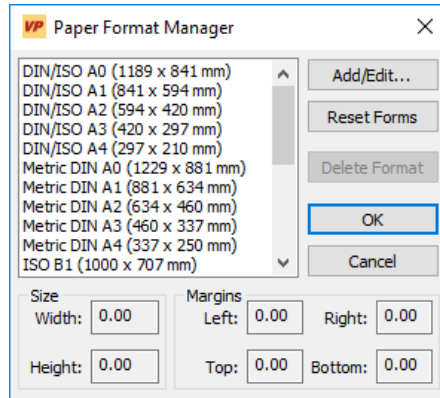
Columns controls the number of thumbnails in a row in the Symbol Library. List provides various options for displaying file information in detail.

Paper Format Manager

Menu: **Options ► Paper Format Manager**

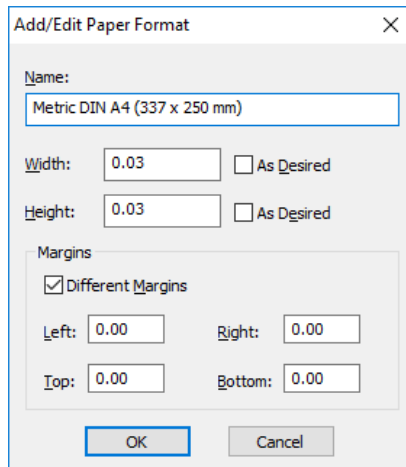
CMD: **VPPAPERMANAGER**

The following dialog appears:



Add/Edit

A dialog opens for adding or modifying a paper format. The format properties are interpreted as values in drawing units (mm or inch).



The properties of the selected paper format are preset. A new paper format is created when the **Name** is changed. Otherwise, the selected format will be modified.

Width

The new **Width** of the selected format. If **As Desired** is **on**, the **Width** field will be grayed. In any case the width of this format is the full width of the image to be processed.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Height

The new **Height** of the selected format. If **As Desired** is **on**, the **Height** field will be grayed. In any case the height of this format is the full height of the image to be processed.

Margins

The 4 margins determine the distances between the **drawing frame** and the physical **paper limits** (= **Width** and **Height**). For example, the length of the paper form (taken from edge to edge of the paper) minus both margins (**left** and **right**) defines the actual frame length of the drawing.

Different Margins {on/off}

If not selected only one margin value serves for all 4 margins of the drawing.

Default: **off**

Reset Forms

Discards all modifications on the standard formats (incl. deletion). User defined formats are deleted.

Delete Format(s)

Deletes the selected paper format(s).

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

SECTION 4

DOCUMENT SETTINGS, DOCUMENT FUNCTIONS, BASIC EDITING

General Information

These settings define your CAD environment for each document such as layers, linetypes, colors, text styles, image settings for raster files etc. You may use the **Prototype Drawing** to set up your personal environment. The prototype drawing will be loaded automatically to a new document or whenever you start with a raster file into a new document. If you save a document to RVD format or export a document to RVD, RDWG, DWG, or another vector or hybrid format your environmental settings will be saved or exported (as far as the export format allows for) to that file.

Page Control (only Windows)

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

If a document has more than one page you can use the page control toolbar for page selection and manipulation. Inaccessible icons are grayed. The commands are grouped in the **Page** menu item.



Page Display

First Page [Pos 1]

	Toolbar: Page Control Menu: Page ► View ► First CMD: VPFIRSTPAGE
--	---

Displays the first page.

Previous Page [Page Down]

	Toolbar: Page Control Menu: Page ► View ► Previous CMD: VPPREVPAGE
--	---

Displays the previous page.

Next Page [Page Up]



Toolbar: **Page Control**

Menu: **Page ► View ► Next**

CMD: **VPNEXTPAGE**

Displays the next page.

Last Page [End]



Toolbar: **Page Control**

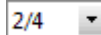
Menu: **Page ► View ► Last**

CMD: **VPLASTPAGE**

Displays the last page.

Select Page

The selection box displays the actual page no. out of the total number of pages in this document.



You can select any other page.

Direct selection of a Page

Menu: **Page ► Go To**

CMD: **VPGOTOPAGE ► Dialog**

CMD: **VPGOTOPAGE <Value>**

A dialog opens for selecting the page to display. The page number can also be entered directly at the command line.

Insertion and Deletion of Pages

Insert page to first position

Menu: **Page ► Insert ► First Position**

CMD: **VPPINSERTFIRST**

Inserts a new page **before** the first page.

Insert page before active page

Menu: **Page ► Insert ► Before**

CMD: **VPPINSERTBEFORE**

Inserts a new page **before** the active page.

Insert Page after active page



Toolbar: **Page Control**

Menu: **Page ► Insert ► After**

CMD: **VPPINSERTAFTER**

Inserts a new page **after** the actual page.

Insert page to end

Menu: **Page ► Insert ► Last Position**

CMD: **VPPINSERTLAST**

Adds a new page **after** the last page.

Delete Page



Toolbar: **Page Control**

Menu: **Page ► Delete Page**

CMD: **VPDELETEPAGE ► Safety prompt**

CMD: **VPDELETEPAGE [Start] [End] [/a]Always]**

Deletes the current page.

Start The number of the first page to be deleted.
Default: **active page**

End The number of the last page to be deleted.
Default: **same as Start**

A|Always Suppress the safety prompt (for use in scripts and batch processing).
Default: **off**



The deletion of pages cannot be undone. For this reason the safety prompt has to be answered with "Yes" first.

Import of Pages



When importing pages with any command, the option **Edit ► Undo** is not available. Use **Page ► Delete Page** instead.



Import to first position

Menu: **Page ► Import ► First Position**

CMD: **VPPIMPORTFIRST ► Dialog**

CMD: **VPPIMPORTFIRST <File> [/p|Page <Value>]**

The **Import** dialog opens for selection of a single page to be imported as a new page before the first page.

File File name to be imported.

P|Page Page to be imported.

Default **Page 1**

Import page before active page

Menu: **Page ► Import ► Before**

CMD: **VPPIMPORTBEFORE ► Dialog**

CMD: **VPPIMPORTBEFORE <File> [/p|Page <Value>]**

The **Import** dialog opens for a selection of a single page to be imported as a new page before the active page.

File File name to be imported.

P|Page Page to be imported.

Default **Page 1**

Import page after active page

Menu: **Page ► Import ► After**

CMD: **VPPIMPORTAFTER ► Dialog**

CMD: **VPPIMPORTAFTER <File> [/p|Page <Value>]**

The **Import** dialog opens for a selection of a single page to be imported as a new page after the active page.

File File name to be imported.

P|Page Page to be imported.

Default **Page 1**

Import page to end

Menu: **Page ► Import ► Last Position**

CMD: **VPPIMPORTLAST ► Dialog**

CMD: **VPPIMPORTLAST <File> [/p|Page <Value>]**

The **Import** dialog opens for a selection of a single page to be imported as a new page after the last page

File File name to be imported.

P|Page Page to be imported.

Default **Page 1**

Moving Pages



Moving of pages - regardless of the used command - cannot be undone with **Edit ► Undo**. Instead, use a command from the group **Page ► Move** once again to restore the previous page order.

Move page(s) to first position

Menu: **Page ► Move ► To First.**

CMD: **VPPMOVEFIRST [Start] [End]**

Move one or more pages to first position.

Start Number of the first page to be moved.

Default **active page**

End Number of the last page to be moved.

Default **same as [Start]**

Move page(s) towards the beginning

Menu: **Page ► Move ► Towards Beginning.**

CMD: **VPPMOVEBEGIN [Start] [End] [Destination]**

Move one or more pages towards the beginning.

Start Number of the first page to be moved.

Default **active page**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

End	Number of the last page to be moved.
Default	same as [Start]
Destination	Number of the page where the pages will be moved to.
Default	one page towards the beginning
Example:	VPPMOVEFORW The active page is moved one position before. VPPMOVEFORW 8 11 5 Pages 8-11 (included) are moved before page 5.

Move page(s) towards the end

Menu: **Page ► Move ► Towards End.**

CMD: **VPPMOVEEND[Start] [End] [Destination]**

Move one or more pages towards the end.

Start	Number of the first page to be moved.
Default	active page
End	Number of the last page to be moved.
Default	same as [Start]
Destination	Number of the page where the pages will be moved to.
Default	one page towards the end

Move page(s) to end

Menu: **Page ► Move ► To Last.**

CMD: **VPPMOVELAST [Start] [End]**

Move one or more pages to the last position.

Start	Number of the first page to be moved.
Default	active page
End	Number of the last page to be moved.
Default	same as [Start]

Scanning Pages



Scanning of pages - regardless of the used command - cannot be undone with **Edit ▶ Undo**. Instead, use the command **Page ▶ Delete Page**.

Scan page to first position

Menu: **Page ▶ Scan ▶ To First Position**

CMD: **VPSCANFIRST ▶ Dialog**

CMD: **VPSCANFIRST [/q|Quiet]**

The **Scan** dialog opens. Upon confirmation with OK the scanned page is inserted as the first page.

q|Quiet The dialog for the scanner selection will be suppressed and the last used scanner is selected.

Scan page before the active page

Menu: **Page ▶ Scan ▶ Before**

CMD: **VPSCANBEFORE ▶ Dialog**

CMD: **VPSCANBEFORE [/q|Quiet]**

The **Scan** dialog opens. Upon confirmation of the dialog with OK the scanned page is inserted before the active page.

q|Quiet The dialog for the scanner selection will be suppressed and the last used scanner is selected.

Scan page after the active page

Menu: **Page ▶ Scan ▶ After**

CMD: **VPSCANAFTER ▶ Dialog**

CMD: **VPSCANAFTER [/q|Quiet]**

The **Scan** dialog opens. Upon confirmation of the dialog with OK the scanned page is inserted after the active page.

q|Quiet The dialog for the scanner selection will be suppressed and the last used scanner is selected.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Scan page to end

Menu: **Page ► Scan ► To Last Position**

CMD: **VPSCANLAST ► Dialog**

CMD: **VPSCANLAST [/q|Quiet]**

The **Scan** dialog opens. Upon confirmation of the dialog with OK the scanned page is inserted as the last page

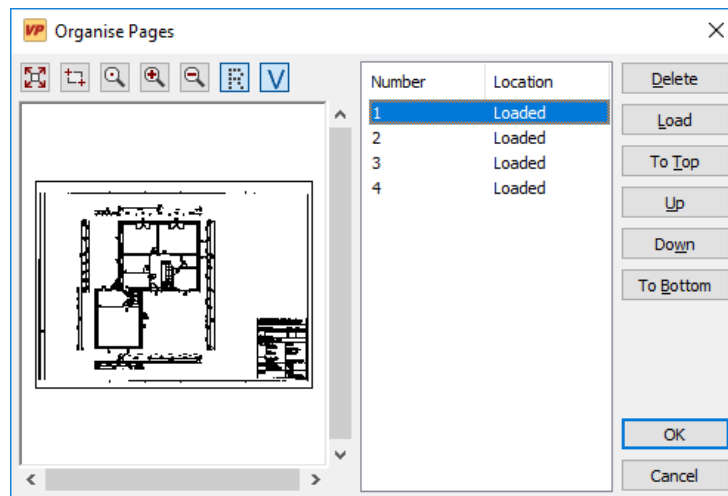
q|Quiet The dialog for the scanner selection will be suppressed and the last used scanner is selected.

Organizing Pages

Menu: **Page ► Organise**

CMD: **VPORGANISE ► Dialog**

The dialog **Organise Pages** opens.



The dialog is structured in three main groups. A preview of the selected page is shown together with display options on the left side. In the dialog's center a list of pages of the active document is displayed. Commands for changing the page order are available on the right side.

The display options and commands (**Zoom in**, **Zoom out**, **Zoom window**, **Zoom pixel**, **Zoom extents**, **Show raster** and **Show Vector**) equal the commands in main document windows.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

One or more pages can be selected for processing in the pages list using the standard Windows selection methods. Each page has a **Number** and a **Location**. The Number reflects the number of the page at the time the dialog was opened and remains unchanged until the dialog is closed. Location shows either **Loaded** or **Not Loaded** depending on whether the page already resides in memory or not. A preview is only shown for loaded pages. Otherwise “N/A” is displayed in the preview window. The commands will also work on pages that are not loaded.

- Delete:** The selected pages are deleted.
- Load:** The selected pages are loaded to memory for preview.
- To Top:** The selected pages are moved to the top.
- Up:** The selected pages are moved up.
- Down:** The selected pages are moved down.
- To Bottom:** The selected pages are moved to the bottom.
- OK:** Confirms the changes for the document. Since delete operations cannot be undone a safety prompt is displayed if the command **Delete** has been used.
- Cancel:** The dialog is closed and the modifications are discarded. Pages that were loaded into memory using **Load** are not unloaded and will be kept in memory.

Layer Manager



Toolbar: **Layers**

Menu: **Options ► Layer Manager**

CMD: **VPLAYERS** [/a <Name>] [<n <Name>] [/m <Name>] [/l <Name>] [/c <Name>]
[w <Value>] [/s <1|0>] [/l <1|0>]

CAD: **_layer**

The Layer Manager allows for setting up an unlimited amount of layers with different options according to user requirements. For each layer you can define the following settings:

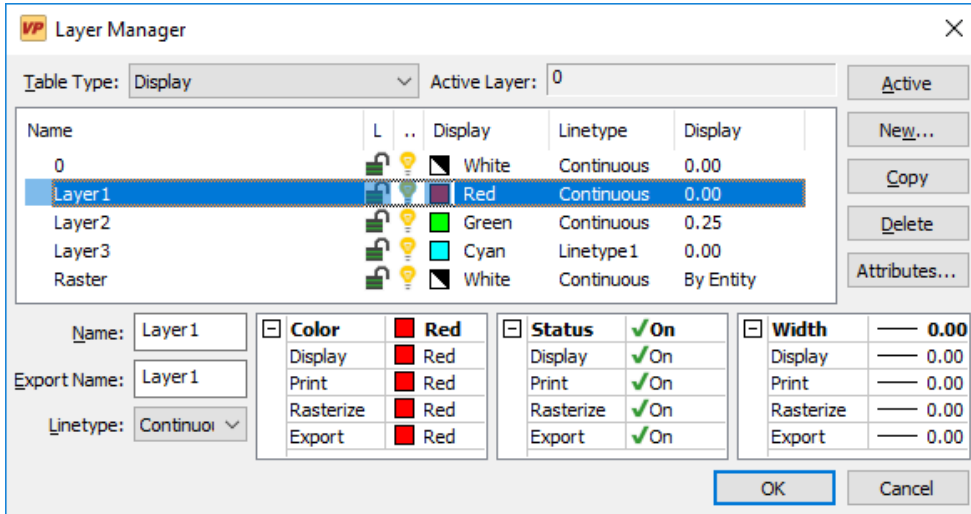
- To be the Active Layer (current layer)
- Layer Name
- Layer Name on Export
- Linetype of Layer
- Color, Status, and Width of Display, when Printing, with Rasterize, on Export

All settings follow standard CAD conventions.

Command line

/a <Layer Name>	Change the active/current Layer
/n <New Name>	Create a new Layer with the specified values
/m <Layer Name>	Modify an existing Layer to the specified values
/l <Name>	Name of an existing Linetype.
/c <Name>	Name of a Color. See Color Manager :
/w <value>	Line width
/s <1 0>	Display status (show/hide)
/l <1 0>	Lock status (locked/unlocked)

If no parameters are specified, the dialog box is displayed:



As default settings you will find **Layer 0**. Layer 0 is intended to host preferably vector entities; linetype is continuous and width is set to 0.00. This layer may also be used for raster and/or hybrid entities.

Default: Layer 0

The dialog box can be defined by **Table Type** for displaying the settings for **All**, or separately for **Display**, **Print**, **Rasterize**, or **Export**. If the table type is set to **All** the dialog box appears as follows:

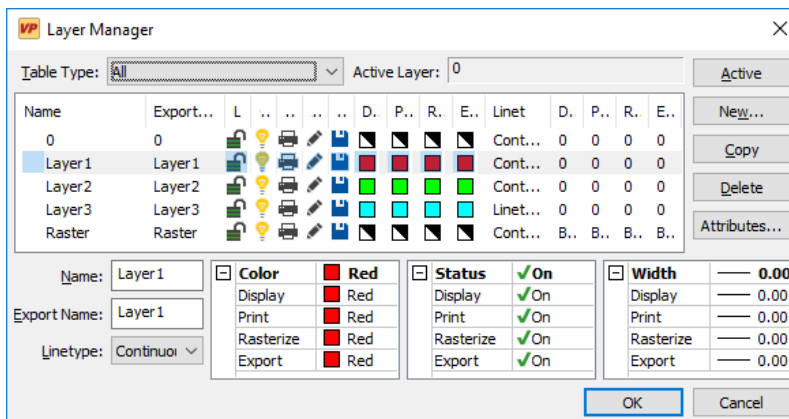


Table Type

Select items the dialog should display: All, Display, Print, Rasterize, or Export respectively.

Default: **Display**

Active Layer (Current Layer)

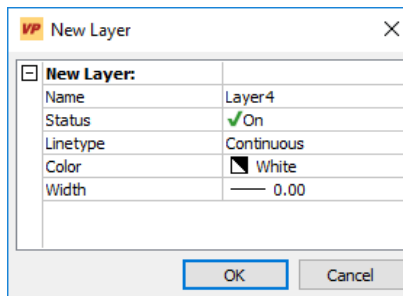
Select which layer becomes the active layer. You may also change the selection at any time using the layer selection box from the toolbar:



Default: **Layer 0**

New

Create a new layer. A dialog appears where you can define Name, Status, Linetype, Color, and Line Width for the new layer. The dialog comes up with 5 default values identical for all tables and assigns **Layer 1, 2, ..n** as layer and export layer name. You can modify any default values. Clicking some of the entries will bring up a list box for selection (e.g. Colors):



If you need to have different values for Display or other options (e.g. Print, Rasterize, Export) you can modify these values after **OK** in the Layer Manager dialog.

Default values: **see Dialog**

Copy

Create a copy of the settings of the selected layer. The layer name receives a number as a suffix which will be incremented with every copy command. Select the copied layer in the dialog for any modification.

Delete

Any layer without entities assigned to this layer can be deleted.

Export Name

If required special names may be assigned to a layer only for exporting the data of a document.

Default: **Layer Name**

Linetype

You can assign a linetype to a layer. If the **Active Linetype** (see: **Linetype Manager**) selection box is set to "**By Layer**" then all entities drawn in that layer are drawn with the linetype assigned to that layer. If such entities are transferred to other layers having different linytypes assigned to them the entities change their linytypes accordingly.

As default the linetype is continuous. Other linytypes are available in the selection box if they have been defined. If a new linetype is required, select **Other**. Then, the **Linetype Manager** dialog opens for setting up a new linetype. Next, the system returns to the layer manager dialog.

Default: **Continuous**

Color

Select a color for the layer. You can select different colors for the display, for printing, for rasterizing entities, and for export. The 8 standard colors are available. With selecting **Others** the **Color Manager** appears where you can select any desired color.

Default: **All White**

Status {on/off}

The layer can be switched on or off. You can switch the layer on or off separately in the display, for printing, for rasterizing entities, and for export.

Default: **All on**

Status Locked {on/off}

The layer can be locked. This property may only be useful when editing a drawing as it controls whether elements in this layer can be selected, thus modified, or if they are inaccessible.

Default: **Unlocked**

Width

Set the width of (vector) entities to the desired values. Width 0.00 is the standard setting in a CAD environment. You may want to have a different setting for Rasterize and/or Print in order to display the entities with their actual width.



The Layer defines the line width of an element on display, print, rasterize, or export

0.0 or larger: The **width** of the layer will be used. The individual width of an element will be ignored.

By Entity: The individual width of each element on this layer will be used

By Color: The **color** of an element defines its width. The individual width of the element will be ignored. All elements with the same color have the identical width. You can define the width of a color in the **Color Manager**.

Default: **All 0.00**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Attributes

Closes the layer manager, confirms all changes, and opens the attribute manager. See below **Attributes** for details.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Transfer to Current Layer (only Windows)



Toolbar: **Layers**

Menu: **Edit ► Transfer to ► Current Layer**

CMD: **VPSHIFTLAYER <Name>**

Selected entities are transferred to the current layer.

If a layer is specified, the selected entities are transferred to this layer.

Pick Layer (only Windows)



Toolbar: **Layers**

Menu: **Edit ► Pick Property ► Pick Layer**

CMD: **VPPICKLAYER**

The layer of a clicked entity becomes the current layer.

Preview

Before clicking onto the entity the name of the layer is displayed in the status bar. This is indicated by a little **i** added to the cursor.

Project Bar (only Windows)

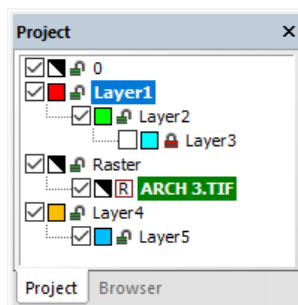


Toolbar: **Layers**

Menu: **Options ► Project Bar**

CMD: **VPPROJECTBAR**

This command opens the dialog window **Project Bar**:



It displays the tree structure of all currently available layers and - as sub-entries to each layer - all loaded raster images. The currently active layer is shown with a **highlighted** name. The currently active raster image is indicated in **bold letters**.


The **Check Box** in front of each layer or entry indicates the display status: **visible** or **non-visible**. Clicking on a check box toggles the display status of this entry.

 The **Color** of each layer/entry is indicated by an according colored square.

 This icon indicates the **Color 7**, which is **black** on a white background and **white** on a black background.

Clicking on a layer name with the left mouse button sets this layer as **Active Layer**, clicking on a raster image name sets this image as **Active Raster**.

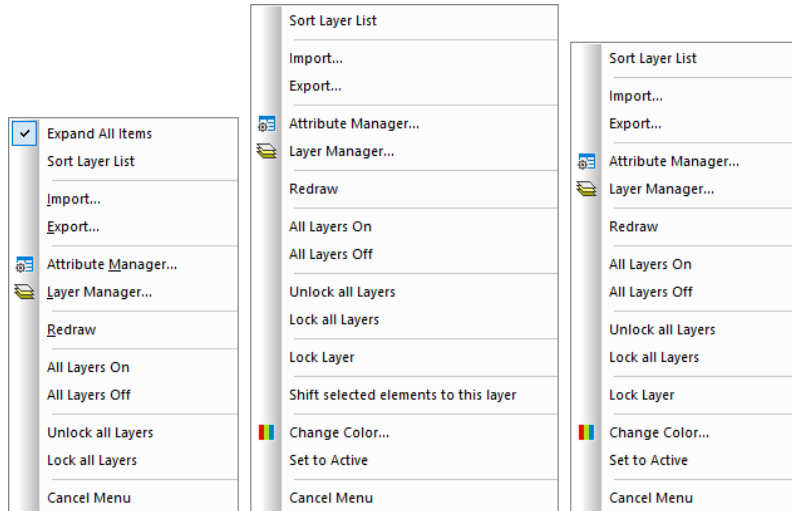
The **Draw Order** can be changed by dragging (left click+move) a layer to a new position in the tree. On drop (release left mouse button) the layer will be inserted below the actual (highlighted) layer and the draw order will be re-arranged accordingly. The entities of the layer on top position of the tree will be drawn first, the entities of the layer on bottom position of the tree will be drawn last (its entities will be drawn **above** all other entities).

 Raster Images will always be drawn first (**below** the vector entities). All new created entities will always be drawn on top, regardless of their layer position in the tree.

Pressing the **[Ctrl]** key on drop will assign the dragged layer as sub-layer to the actual (highlighted) entry. This way families of layers can be arranged and then easily switched on and off together by clicking the checkbox of the main layer.

Dragging the name of a raster image changes the layer of this image. The **[Ctrl]** key has no function.

On right mouse click inside the project bar dialog one of the three following menus appear (nothing selected, Raster selected, Layer selected):



Expand All Items

All sub items are displayed in the tree structure.

Import

Imports a new file into this project. If the selected file is a raster image and the mouse was positioned on top of a layer, then the imported image will automatically be assigned to this layer. See **File Import** for details.

Export

Exports the selected document/image. See **File Export** for details.

Layer Manager...

The **Layer Manager** dialog pops-up and allows to create/edit all layers.

Redraw

The draw order of all entities will be re-arranged according to the actual tree structure and the document will be redrawn.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

All Layers On

All layers become visible.

All Layers Off

All layers become invisible.

Unlock all Layers

All layers will be unlocked.

Lock all Layers

All layers will be locked.

Lock/Unlocked Layer (Unlocked/Locked Layer selected)

The selected layer will be locked/unlocked.

Properties (Raster selected)

Opens the standard properties dialog for the selected raster.

Image Settings (Raster selected)

Opens the image settings dialog for the selected raster.

Delete (Raster selected)

Deletes the selected raster.

Change Color (Raster selected, Layer selected)

Opens the color manager dialog for the selected item.

Set to Active (Raster selected, Layer selected)

Sets the selected item as active item.

Cancel Menu

Closes the context menu without changes.

Attribute Manager...

The **Attribute Manager** dialog pops up to create/edit attributes.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Width Manager (Windows only)



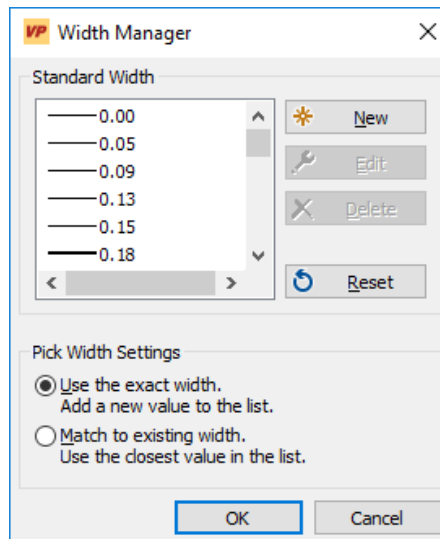
Toolbar: **Width**

Menu: **Options ► Width Manager**

CMD: **VPWIDTH**

CAD: **_lweight**

The **Width Manager** allows to configure the line widths. You can add or remove widths.



Standard Width

Shows the list of widths available in all documents. If necessary you can add, edit or delete a width. A new width, created by the **Pick Width** command will be **not** displayed here, because it is only available in the current document (see **Pick Width**).

New

Creates a new Standard Width.

Edit

Modifies an existing width entry. Except: width **0.0**.

Delete

Deletes an existing width entry. Except: width **0.0**.

Reset

All widths will be reset to their default values. Any new added widths will be deleted.

Pick Width Settings

Use the exact width: The **Pick Width** command measures the exact width and adds it to the current document (if not yet existing).

Match to existing width: The **Pick Width** command selects the closest width value of the current document as new current width.



Some formats (e.g. DWG/DXF) support only a list of predefined width values. In case of export to such a format other width values will be adjusted accordingly.

Pen (current) Width

Displays the current width, which will be used when drawing a new element. The layer symbol in front of the width value means that the width of the current active Layer is used. In this case you cannot change the current **Pen Width**. Only if the active layer has the width setting **By Entity** you can select individual width values for new elements. Individual widths of the document are the first entries of the list followed by the standard width values.



Default: <Width of the active Layer>



The layer settings define the line width of the elements for display, print, rasterize, and export. See **Layer Manager**, Width.

CAD: The default display width for all elements is 0.0. For rasterize or plot the layer and/or plot style settings are used.

Assign Current Width (Windows only)



Toolbar: Width

Menu: **Edit ► Transfer to ► Current Width**

CMD: **VPSHIFTWIDTH** <width value>

The current width is assigned to the selected entities.

If a width value is specified, this width is assigned to the selected entities.

Pick Width (Windows only)



Toolbar: **Width**

Menu: **Edit ► Pick Width**

CMD: **VPPICKWIDTH>**

The line width of an element or a raster structure can be measured by clicking on it. This width value becomes the new current width. Depending on the settings in the **Width Manager** the exact width value or the standard width nearest to it is used (see **Width Manager**).



This function is only available if the active Layer has the width value **By Entity**



New width values (= a none standard width) are only part of the current document. Use the **Width Manager** to add new width values available for all documents.

Linetype Manager



Toolbar: **Linetypes**

Menu: **Options ► Linetype Manager**

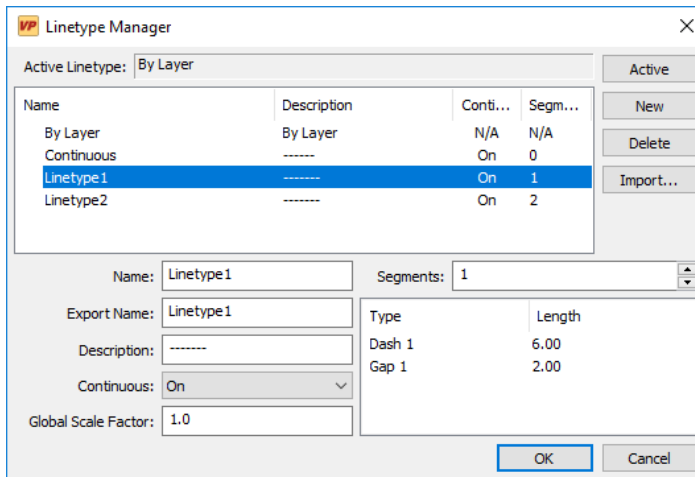
CMD: **VPLINETYPES** [/a <Name>]

CAD: **_linetype**

Command line

/a <Name> Change the active/current Linetype

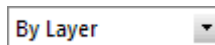
If no parameters are specified, the dialog box is displayed:



The first line showing the name "**By Layer**" is not a linetype. Instead, it is used in the linetype selection box (below) to indicate that the linetype used for an entity will be controlled by the linetype assigned to the layer. If such an entity is transferred to different layers it may have different linetypes.

Active Linetype

Select the active linetype. You may also change the selection at any time using the linetype selection box from the toolbar.



Default: **By Layer**

New

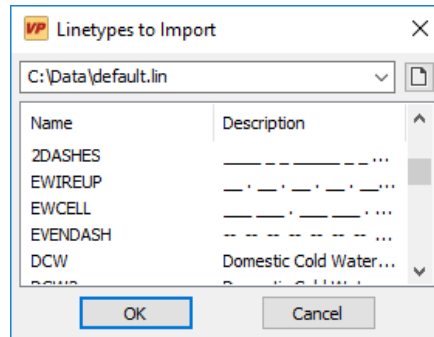
Creates a new linetype with the default settings. You can modify the names, the description, the "Continuous" mode, and assign segments (one or more), each of which consists of a gap and a dash in order to create dashed and dash dotted linetypes.

Delete

Any linetype not assigned to a layer and/or entity can be deleted.

Import...

New line types can be imported from AutoCAD-compatible **LIN** files– even more complex types including text and/or symbols. The following dialog appears:



Choose a **LIN** file via the file symbol or enter a **LIN** file path. The contained line types will be listed. Click to select the line types you want to import – multiple selection with **[Ctrl]** or **[Shift]**. **OK** confirms the selection and import.

Export Name

If required special names may be assigned to linetypes only for exporting the data of a document.

Default: **Same as Name**

Description

Allows for a graphical description of the designed linetype.

Continuous {on/off}

If continuous is set to **on** a linetype assigned to a polyline is arranged in a way that the 'dash' - 'gap' periods continue also at corners (vertices). Hence a corner becomes "invisible" in case there is no dash.

Default: **on**

Global Scale Factor

Dash and **Gap** length for all linetypes can be scaled. This may be necessary for adjustments to a specific User Coordinate System.

Default: **1.0**

Segments

A linetype other than continuous may consist of one or more segments - each of them containing a gap and a dash. A maximum of 16 segments may be assigned to one linetype. Fields appear grayed when the selected line type contains text or symbols.

Default: **0**

Dash

Define the dash length for each segment. A dash length of 0.00 represents a "dot".

Default: **0.00**

Gap

Define the gap length for each segment.

Default: **0.00**

Assign Current Linetype (only Windows)



Toolbar: **Linetypes**

Menu: **Edit ► Transfer to ► Current Linetype**

CMD: **VPSHIFTLTYPE <Name>**

The current linetype is assigned to the selected entities.

If a linetype is specified, this linetype is assigned to the selected entities.

Pick Linetype (only Windows)



Toolbar: **Linetypes**

Menu: **Edit ► Pick Property ► Pick Linetype**

CMD: **VPPICKLINETYPE**

The linetype of a clicked entity becomes the current linetype.

Preview

Before clicking onto the entity the name of the linetype is displayed in the status bar. This is indicated by a little **i** added to the cursor.

Text Style Manager



Toolbar: **Text Styles**

Menu: **Options ► Text Style Manager**

CMD: **VPTEXTSTYLES** [/a <Name>]

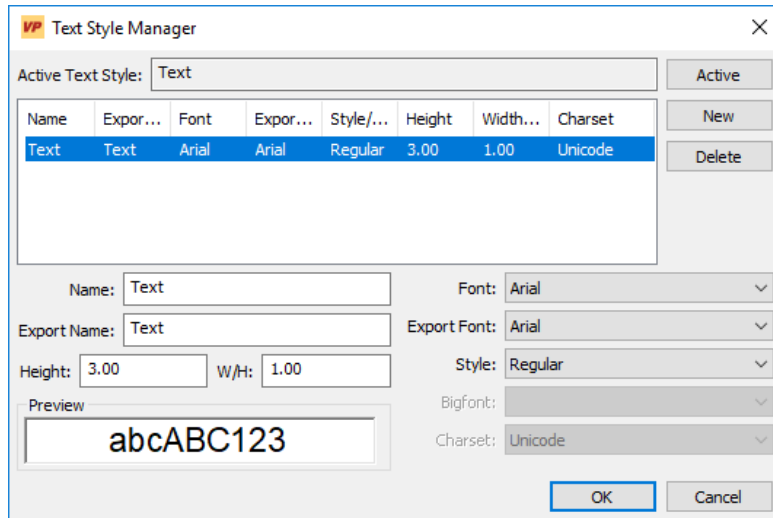
CAD: **_style**

The text style manager allows for defining text styles. All text fonts available in your Windows Operating System can be used and assigned to text styles for successive use in your VP software.

Command line

/a <Name> Change the active/current Text Style

If no parameters are specified, the dialog box is displayed:



You can select any available text style in the list for modification or deletion. When clicking **New** an additional text style will be listed. Settings will be copied from an existing style. Use the tools for modifications.

Active Text Style

Select the active text style. You may also change the selection at any time using the text style selection box from the toolbar.



Default: **Text**

New

Defines a new text style by copying the setting from the last selected one or from the last entry respectively. You can modify the names, the fonts, the style, and assign height and width/height ratio individually.

The **Preview** displays the selected font. You may enter (edit) the displayed standard text in order to see the text style with a particular text string.

Delete

Any text style not being assigned to a layer and/or entity can be deleted.

Export Name

If required special names may be assigned to text styles only for exporting the data of a document.

Default: **Text**

Height

Assign the height to the text style.

Default: **10.00**

Width to Height Ratio

Assign a width/height ratio.

Default: **0.70**

Font

Select any available font from the drop list.

Default: **Arial**



If the current document was loaded from a PDF file, there might be font names with the extension **embedded**. These fonts are special fonts that were loaded from the PDF file. Because these special fonts may be only a sub-set (= they do not contain all standard characters) you should not use them for a new text style. Also, exporting them to other file formats than RVD may lead to undesired results.

Export Font

Select any available font from the drop list if you want a different font for data export.

Default: **Same as Font**

Select between the styles **Regular**, **Bold**, **Bold Italic**, and **Italic**.

Default: **Regular**

Big Font

Additionally, a **Big Font** can be set up for Asian characters or other symbols when a SHX font has been selected. This field is grayed for TrueType fonts.

Default: none

Charset

This field is only available when VP software has been installed with AutoCAD 2004 –2006. In this case a character set can be specified (e.g. Japanese, Chinese) for fonts which support various character sets (e.g. Arial) By default the character set of the operating system is preset. For all other installations the character set is always Unicode.

Default: Unicode

Assign Current Text Style (only Windows)



Toolbar: **Text Styles**

Menu: **Edit ► Transfer to ► Current Text Style**

CMD: **VPSHIFTSTYLE <Name>**

The current text style is assigned to the text entities of the selected entities. Other selected entities will be ignored.

If a text style is specified, this style is assigned to the selected text entities.

Pick Text Style (only Windows)



Toolbar: **Text Styles**

Menu: **Edit ► Pick Property ► Pick Text Style**

CMD: **VPPICKTEXTSTYLE**

The text style of a clicked text entity becomes the current text style.

Preview

Before clicking onto the text entity the name of the text style is displayed in the status bar. This is indicated by a little **i** added to the cursor.

Color Manager (only Windows)



Toolbar: **Color**

Menu: **Options ► Color Manager**

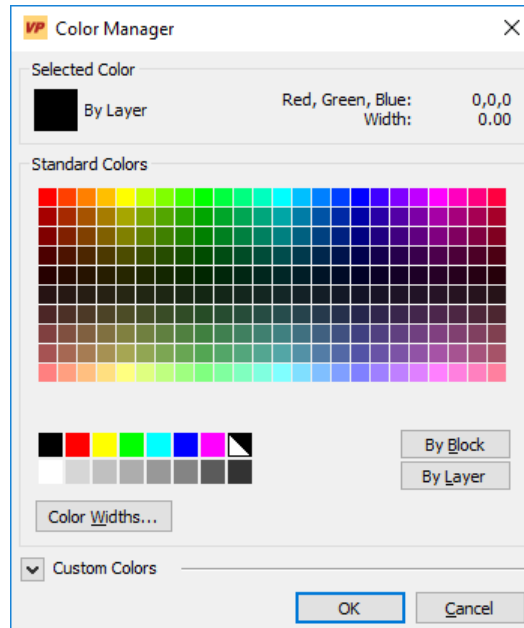
CMD: **VPCOLORS** [/a <Name>]

The color manager allows for selecting and assigning colors wherever required.

Command line

/a <Name> Change the active/current Text Style

If no parameters are specified, the dialog box is displayed:



In the upper part the currently **Selected Color** is displayed as color icon with its name and the color components in RGB (**Red-Green-Blue**) and CMY (**Cyan-Magenta-Yellow**). When **By Layer** is selected the color of the current layer is displayed. With **By Block** the color icon is always black.

Standard Colors

The field contains 240 colors and below the 16 standard colors. Together they create the VP standard palette. When moving over the color field the color names and their RGB components are shown.

By Layer

This button assigns the color of the active layer as selected color **By Layer**. Entities created with this color will be displayed with the color of their layer. You have to assign the layer color in the **Layer Manager**.

By Block

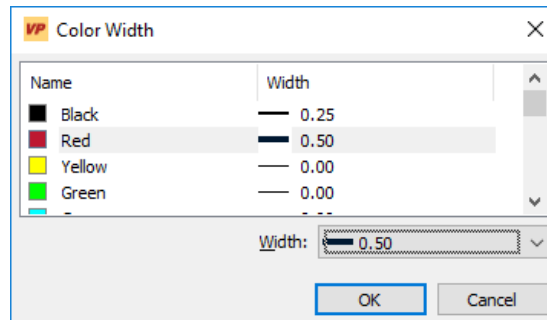
This button assigns the color of the block as selected color. If you use this option for entities which will be assembled to a block you may assign any color to that block.



In this case **all entities** forming the block must have assigned the color **By Block**.

Width

A dialog appears where a **Width** can be assigned for each color.

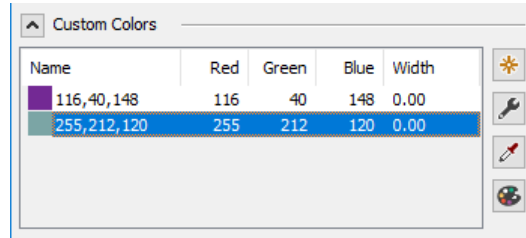


In order to display entities with the width from their color, the layer of the element must have the width set to **By Color**.

The width assignment to a color is most important when printing/plotting or for rasterizing entities. For example, setting the width for all layers in the section Print (**Layer Manager**) to **By Color** allows for adjusting the plot output line width by the entity color, regardless of the layer location of an entity. All red entities will then be plotted with the assigned width. The same applies for rasterizing elements.

Custom Color

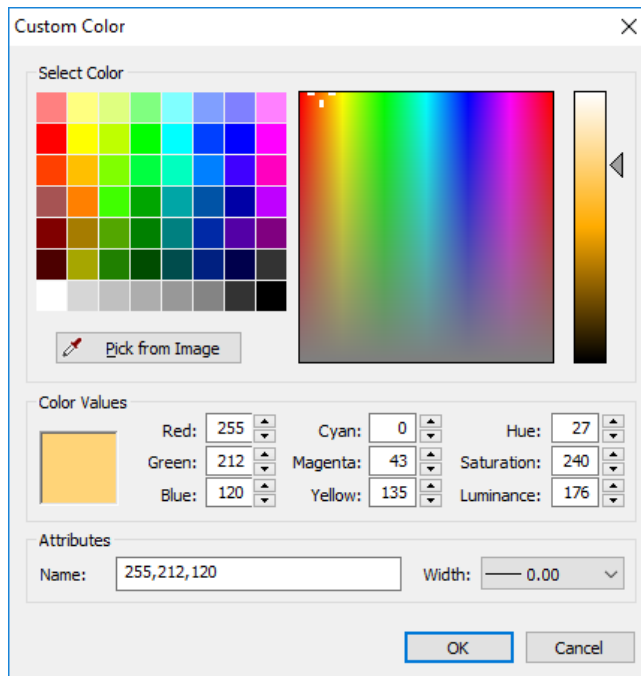
The dialog is extended by a list of **Custom Colors**.



Create/Modify Custom Colors



The following dialog shows up:



Beside the color itself, a **Name** and a **Width** can be assigned. With **OK** the dialog is closed and the created/modified color is listed as **Custom Color**.

Automatic color creation



This icon is active when a colored raster image is loaded and you can pick a pixel from a colored image. In case the color is not one of the VP standard colors a new **Custom Color** will be created with a default name and width and is selected as the **Selected Color**. Otherwise the corresponding standard color is selected. The color manager is closed with **OK**.



This icon is active when a colored raster image is loaded and you can pick a pixel from the active image's palette. . In case the color is not one of the VP standard colors a new **Custom Color** will be created with a default name and width and is selected as the **Selected Color**. Otherwise the corresponding standard color is selected. The color manager is closed with **OK**.

Assign Current Color (only Windows)



Toolbar: **Color**

Menu: **Edit ► Transfer to ► Current Color**

CMD: **VPSHIFTCOLOR <NAME>**

The current color is assigned to the selected entities.

If a color is specified, this color is assigned to the selected entities.

Pick Color (only Windows)



Toolbar: **Color**

Menu: **Edit ► Pick Property ► Pick Color**

CMD: **VPPICKCOLOR**

The color of a clicked entity or raster pixel becomes the current color. In case the color is not one of the VP standard colors a new **Custom Color** will be created.

Preview

Before clicking onto the entity the name of the color is displayed in the status bar. This is indicated by a little **i** added to the cursor.

Match Properties



Toolbar: **Properties/Editing**

Menu: **Edit ► Match Properties**

CMD: **VPMATCH**

Properties like **Layer**, **Line Type**, **Text Style** and **Color** are copied from one entity to another.

Select a source entity from which the properties should be copied. After that select the entities that should receive these properties.

In case entities were already selected before the function call, these entities will receive the properties from the source entity to select.

Compare Revisions



Toolbar: **Properties/Editing**

Menu: **Edit ► Compare Revisions**

CMD: **VPCOMPARE ► Import Dialog**

Compares a loaded file with a saved file and highlights the differences in content. The files are not changed by this.

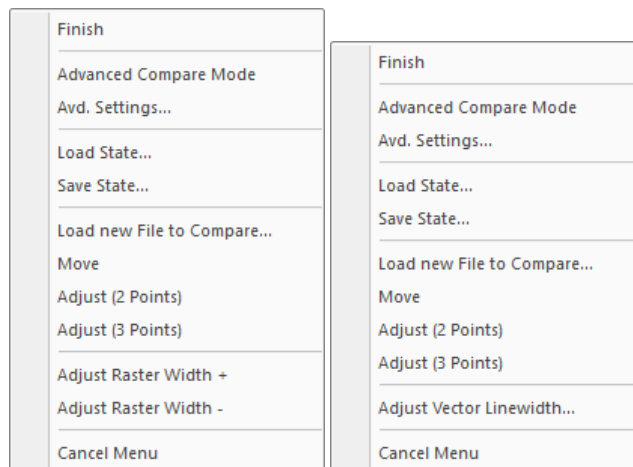
This function is only available if a file is already loaded.

On first start, the import dialog opens to load the second file (reference file) for comparison with the loaded file (original file). Content differences are displayed in different colors:

Background color	Equal	Only in original	Only in reference
White	Black	Green	Magenta
Black	White	Cyan	Red

While the Compare-View is active you can operate all other functions, but any action will only affect the original drawing. For example you can use the redlining functions to mark the differences or use the print command to plot the compare view.

Right-click to open the context menu (left: reference file contains raster data, right: reference file contains vector data):



Finish

The program returns to the view of the original file.

Advanced Compare Mode

In this mode, the accuracy with which the comparison is performed can be set. If the accuracy is low, small differences are ignored. The marked differences between the two files can be turned on or off individually. In addition, the result of the comparison can be saved in a PDF file.

The following color scheme is used, regardless of the background color:

Grey: identical areas

Blue: areas only existing in the original file (first file)

Red: areas only existing in the reference file (second file)

A toolbar with the additional functions is displayed:



Show/hide areas only existing in the **original file**.



Show/hide areas only existing in the **reference file**.



Save result as PDF.



Accuracy: A low accuracy increases the tolerance.



End the advanced compare mode.

Adv. Settings ...

Opens a dialog with settings for the advanced compare mode:

- Accuracy
- Settings for vector data
- PDF export options

Load State

Load a previously saved compare state (reference file and adjustments made, see below).

Save State

Save the current state (original file, reference file, and adjustments made) to continue at a later time. See also **Load Compare State** below.

Load new File to Compare

The import dialog opens to select a new reference file.

Move

Move the reference file by selecting a source and target point.

Adjust (2 Points)

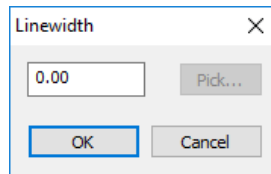
Move and scale the reference file by selecting two source and target points.

Adjust (3 Points)

Move, scale, and rotate the reference file by selecting three source and target points.

Adjust Vector Linewidth (only available if the reference file contains vector data)

A dialog pops-up to set the display line width for all vector entities of the reference file:



If the original drawing contains raster data, you can pick the new line width from the original drawing.

Adjust Raster Width + (only available if the reference file contains raster data)

Perform a one step dilatation (thickening) on the reference file.

Adjust Raster Width - (only available if the reference file contains raster data)

Perform a one step erosion (thinning) on the reference file.

On closing the function, all information about the reference file and adjustment settings are stored. On restart, the previously specified file will be loaded and adjusted - the compare view is active. To compare the original file with a new file use the context menu.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Load Compare State



Toolbar: **Properties/Editing**

Menu: **Edit ► Load Compare State**

CMD: **VPCOMPLOAD ► Dialog**

Load a saved compare state. The original file and the reference file are loaded and all adjustments are made. If a file is already loaded, only the reference file is loaded.



Make sure that the original file and the reference file exist.

User Coordinate System



Toolbar: **Coordinates**

Menu: **Options ► User Coordinate System**

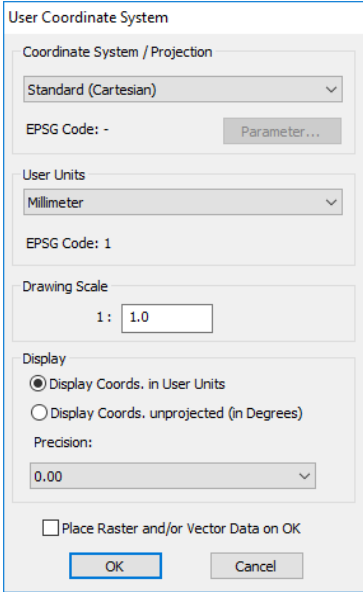
CMD: **VPUSERCOORDS** [/pc <value>] [/uc <value>] [/s <value>] [/up <value>]
 [/d <value>] [/t <value>] [/dc <value>]

VP software supports a **Standard (Cartesian) Coordinate System** and also a wide range of predefined **Projections**. Additional individual **User Defined** projections can be defined.

Command line:

/pc <value>	Coordinate System EPSG Code (see dialog, VPmap Series only)
/uc <value>	User Unit Code (see dialog)
/s <value>	Drawing Scale
/up <value>	Precision of Coordinate Display (0-8) (default = 2)
/d <value>	Coordinate Display: 0: User Units / 1: Unprojected (Degrees) (Default=0)
/t	Coordinate Transform: 0: Keep Values / 1: Keep Values in Degrees / 2: Adjust Coordinates
/dc <value>	EPSG Datum Conversion Code (see dialog). Use '+' for two step conversion (VPmap Series only)

Without parameters or using the icon a dialog box opens for setting up the user coordinate system:



The dialog box 'User Coordinate System' contains the following settings:

- Coordinate System / Projection:** Standard (Cartesian) (dropdown menu)
- EPSG Code:** - (text field) with a 'Parameter...' button
- User Units:** Millimeter (dropdown menu)
- EPSG Code:** 1 (text field)
- Drawing Scale:** 1: 1.0 (text field)
- Display:**
 - Display Coords. in User Units
 - Display Coords. unprojected (in Degrees)
- Precision:** 0.00 (dropdown menu)
- Place Raster and/or Vector Data on OK
- Buttons:** OK, Cancel

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

By entering values for

- **Coordinate System / Projection** (only VPmap Series)
- **User Units**
- **Drawing Scale**

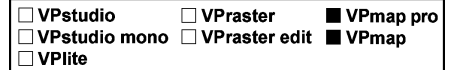
the coordinate system can be adjusted to specific requirements of the active document.

Coordinate System / Projection (only VPHybridCAD)

This field always appears grayed and contains **Standard (Cartesian)**. However, when a file is opened containing Coordinate System information (e.g. GeoTIFF) a Coordinate System with a specific projection can be displayed. In this case **Parameter** becomes available to check on projection parameters. However, these cannot be changed.



To set up and edit a specific Coordinate System with projections you will need to apply softelec's **VPmap Series** products (VPmap, VPmap pro).

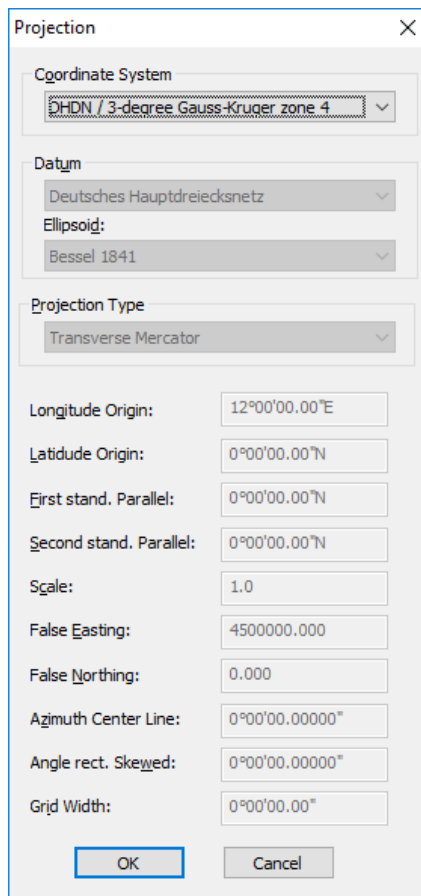


Coordinate System / Projection (only VPmap Series)

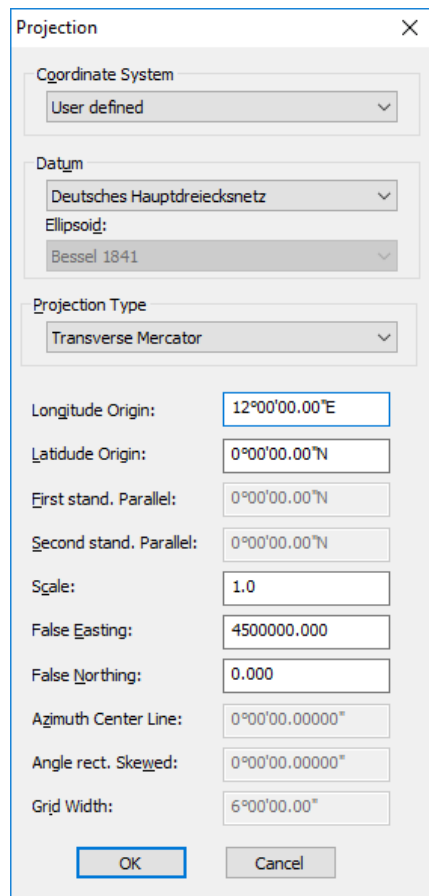
Select between a **Standard (Cartesian)**, a **User Defined** projection, or one of about 2.000 predefined **Coordinate Reference Systems**. When **User Defined** or a predefined System is selected the **Parameter** button is enabled to view and/or edit the **Projection** parameters.

If a predefined system has been selected the **Projection** dialog only allows to review the parameters (sample of a German Gauss-Krueger system with a Bessel ellipsoid and a Transverse Mercator projection method with belonging parameters).

When a **User Defined** system has been selected the values for **Datum** or **Ellipsoid**, **Projection Type**, and belonging parameter values need to be specified.



Gauss-Krueger




User Defined

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

VPmap Series supports about 340 predefined **Datums** which rest on about 40 predefined **Ellipsoids**. The following table shows the supported **Projection Types** and the required parameters:

Projection	Longitude Origin	Latitude Origin	First Standard Parallel	Second Standard Parallel	Scale	False Easting	False Northing	Azimuth of Center Line	Angle Rectified to Skewed Grid	Zone Width
Albers Equal Area	✓	✓	✓	✓		✓	✓			
American Polyconic	✓	✓				✓	✓			
Bonne	✓	✓				✓	✓			
Cassini-Soldner	✓	✓				✓	✓			
Equidistant Cylindrical	✓	✓								
Hotine Oblique Mercator	✓	✓			✓	✓	✓	✓	✓	
Lambert Azimuthal Equal Area	✓	✓				✓	✓			
Lambert Conic Conformal (1 SP)	✓	✓			✓	✓	✓			
Lambert Conic Conformal (2 SP)	✓	✓	✓	✓		✓	✓			
Lambert Conic Near Conformal	✓	✓			✓	✓	✓			
Mercator (1 SP)	✓	✓				✓	✓			
Mercator (2 SP)	✓	✓	✓			✓	✓			
Modified Azimuthal Equidistant	✓	✓				✓	✓			
New Zealand Map Grid	✓	✓				✓	✓			
Oblique Mercator	✓	✓			✓	✓	✓	✓	✓	
Oblique Stereographic	✓	✓			✓	✓	✓			
Polar Stereographic (Variant A)	✓	✓			✓	✓	✓			
Polar Stereographic (Variant B/C)	✓		✓			✓	✓			
Transverse Mercator	✓	✓			✓	✓	✓			
UTM Zoned Grid	✓	✓			✓	✓	✓			✓

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

 **VPmap Series** displays the values for **False Easting** and **False Northing** always in **Meters**, regardless of the selected or predefined **User Units** of the Coordinate System. Correspondingly, they need to be entered in **Meters** for a **User Defined** system.

With **OK** the **Projection** dialog closes and the **User Coordinate System** dialog is again active for further setup of **User Units** and **Drawing Scale**.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

User Units / Drawing Scale


The **User Units** and the **Drawing Scale** should be set to a value which corresponds to the document data. This information may either be part of the legend/drawing header in a raster image or it needs to be known due to other information. This allows for measurements (using function **[F2]**) in the document or for a direct use of real coordinate values for e.g. construction (see **section 8**) or rubber sheeting (see **section 6**).

Display

Choose between **Display Coords. in User Units** and **Display Coords. Unprojected (in Degrees)**. The second option is only available when a coordinate system with projection has been selected. When selected all coordinate input requiring coordinate values in **User Units** must be entered as degree-minutes-seconds (DMS). Possible formats are:

Input Format	Sample Input	Value
<d>°<m>'<s.nn>"	-48°15'30"	-48°15'30"
<d>°<m.nnnn>'	-48°15.5'	-48°15'30"
<d.nnnnn>	-48.2583333	-48°15'30"
<d>°<m>'<s.nn>" [EWNS]	48°15'30" S	-48°15'30"

Instead of using signed values the post-fix **East/West** and **North/South** can be used to specify the direction.

 Instead of using the degrees (°), minutes ('), or seconds (") signs you can also separate the values by a double point (:) (<d>:<m>:<s.nn>). This may especially be necessary for complex command line input or scripting to differ the coordinate values from e.g. long file names with (").

Precision defines the number of decimal places.

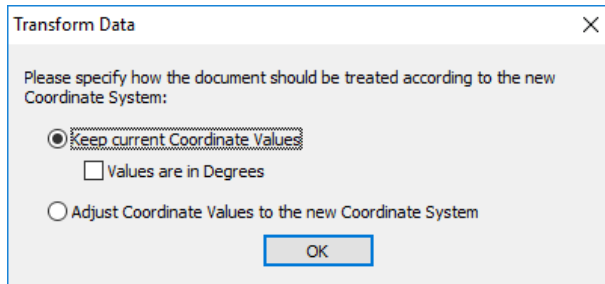
Default: **Display Coords. in User Units**
Precision: **0.00**

Place Raster and/or Vector Data on OK {on/off}

If set to **on** after confirming the **User Coordinate System** settings with **OK** a dialog pops up to specify a new origin for the existing raster and/or vector data. See the following command.

OK

If the coordinate system has been modified another dialog pops up on **OK** to specify whether existing document data should be transformed to the new coordinate system or not:



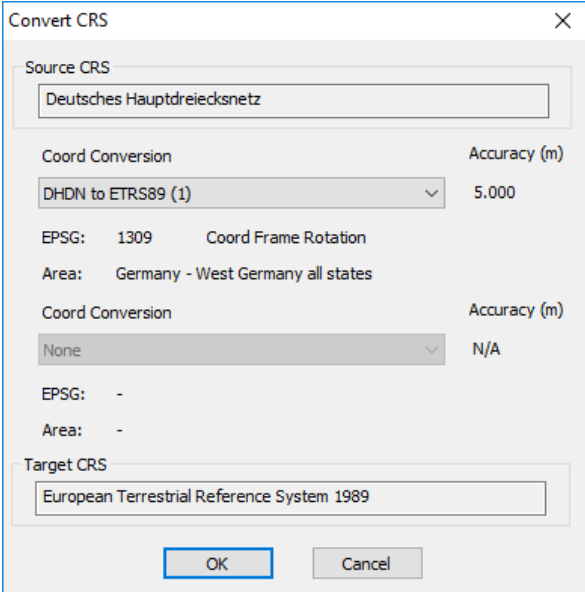
Keep actual Coordinate Values

Use this option when the coordinate values in the document are already displayed correctly. Typically, this is the case when a vector drawing with no or wrong coordinate system information, but real coordinate values has been imported. AutoCAD drawings may be examples (*.DWG) when they have been created in an **English (inch)** environment, but were drawn with **Metric** (millimeter or meter) coordinates. Also, ESRI shape files (*.SHP) may be another example when no corresponding projection file (*.PRJ) is available. Especially, typical GIS formats like MapInfo MIF files and ERSI SHP files may contain vector data with coordinate values in degrees. In these cases the **Values are in Degrees** option needs to be applied.

Adjust Coordinate Values to the new Coordinate System

Use this option when the coordinate values displayed for the document are "paper" units. Typically, this is the case when a raster image without any placing and coordinate system information has been imported.

If you have changed the coordinate system from one projection to another, a datum conversion / transform may be necessary. The following dialog appears to specify the Conversion Operation:



The dialog box titled "Convert CRS" contains the following fields and options:

- Source CRS:** Deutsches Hauptdreiecksnetz
- Coord Conversion:** DHDN to ETRS89 (1) (selected from a dropdown menu)
- Accuracy (m):** 5,000
- EPSG:** 1309
- Coord Frame Rotation:** (selected from a dropdown menu)
- Area:** Germany - West Germany all states
- Coord Conversion:** None (selected from a dropdown menu)
- Accuracy (m):** N/A
- EPSG:** -
- Area:** -
- Target CRS:** European Terrestrial Reference System 1989

Buttons: OK, Cancel

Select one of the available **Coord Conversion Operations** from the top combo box. The dialog will immediately update the information about **Accuracy**, **EPSG** code, **Area** in which this operation should be applied, and what kind of operation it is (here: **Coord Frame Rotation**).

Sometimes it might be necessary to make the conversion in two steps, e.g. first from the **Source CRS** to WGS84 and then from WGS84 to the **Target CRS**. Select the second operation from the available operations of the combo box below.

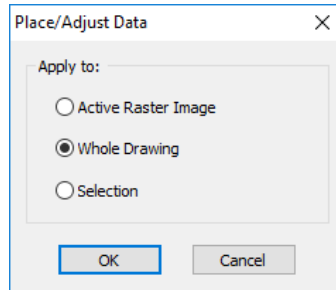
On **OK** raster and vector data will be transformed due to the selected operation(s). If **None** is selected the coordinate values are converted through the geographic 2D domain (e.g. source projected coordinates - Geographic 2d - target projected coordinates).

Place / Adjust Data


Toolbar: Coordinates
Menu: Edit ► Place / Adjust Data
CMD: VPPLACE ► Dialog

Use this function to reposition, rotate, or scale the whole drawing or parts of it.

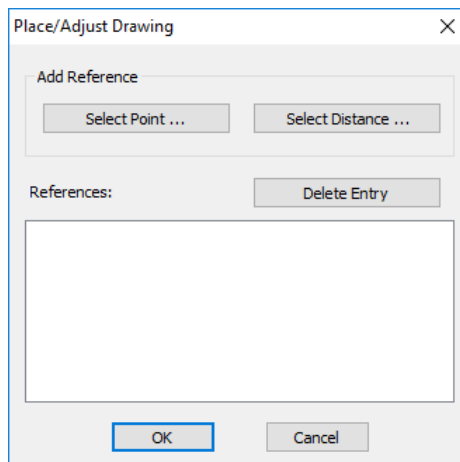
When a drawing already contains Raster and Vector data the following dialog appears to place/adjust data accordingly:



The option **Active Raster Image** only applies to this object. **Whole Drawing** applies to all objects in the drawing.

An individual **Selection** can be made in case no previous selection has been made. Specify your selection after **OK** (see status message).

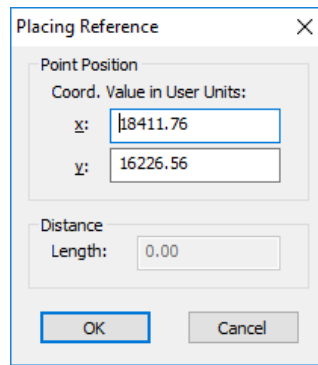
After **OK** or in case the drawing only contains one raster image the following dialog appears:



By choosing **Select Point** or **Select Distance** consecutively you can specify an arbitrary number of reference points or reference distances. After choosing either option click on a point/distance in the drawing first (distance click positions must be close to horizontal or vertical). Then, enter a target position value/target distance value in **User Units**. Target values can also be taken from the drawing, e.g. from a reference vector element. The Vector Snap is available.

Select Point

Select a point in the drawing. The current coordinate of the point is displayed in the **Placing Reference** dialog:



The dialog box titled "Placing Reference" has a close button (X) in the top right corner. It contains two main sections: "Point Position" and "Distance". Under "Point Position", there is a label "Coord. Value in User Units:" followed by two input fields: "x:" with the value "118411.76" and "y:" with the value "16226.56". Under "Distance", there is a label "Length:" followed by an input field with the value "0.00". At the bottom, there are two buttons: "OK" and "Cancel".

The actual value can now be entered or, using **[F2]**, selected from the drawing.

Select Distance

Select a reference distance from the drawing by drawing a line (the reference should be either vertical or horizontal). The measured **Length** is displayed in the dialog. Adjust the value or use **[F2]** to measure a new value from the drawing.

An unlimited number of reference are allowed. Measurement entries can be deleted from the list with **Delete Entry**.

With **OK** adjustment, rotation and scaling (anisotropic) will be calculated from all entries, depending on the number and form of the selected reference points or distances.


 For a simple placement **one reference point** is sufficient. For a simple and accurate scaling **one reference distance** is sufficient. It is recommended to specify a preferably long distance with a known actual value in the drawing.

Image Settings



Toolbar: **Image Settings**

Menu: **Options ► Image Setting**

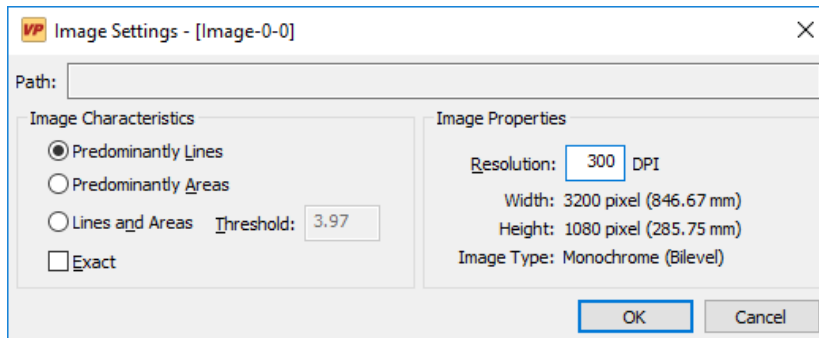
CMD: **VPIMAGESSETTINGS ► Dialog**

CMD: **VPIMAGESSETTINGS [M]METHOD <METHOD> [E]EXACT <EXACT> [T]THRESHOLD <THRESHOLD> [C]COLORMODE <COLORMODE> [FG]FOREGROUNDCOLOR <RED;GREEN;BLUE> [BG]BACKGROUNDCOLOR <RED;GREEN;BLUE> [DPI]RESOLUTION <RESOLUTION> [FILE]**

Displays the raster file settings and allows for modifications. Use this function to define the **Image Characteristics** for vectorization and tracing and - most important for gray scale and color images - the **Active Color Definition**.

B/W Images

With b/w raster files the image settings dialog looks like this:



It displays the **Path** of the image (may be void for new images), the **Image Characteristics**, and the **Image Properties**.

Image Characteristics [/M|METHOD <METHOD>]

The image characteristics define the main structure of an image. They have a successive influence on the conversion process when vectorizing or tracing. Select according to the prevailing entity type in the image, or according to the one you are looking for during the edit and conversion process. Choose either:

- Predominantly lines **/M 0**
- Predominantly areas **/M 1**
- A mixture of areas and lines with the width threshold at "n.nn" [baseunits] for switching to outlines (area) **/M 2 /T n.nn**.

Exact {on/off} [/E|EXACT <EXACT>]

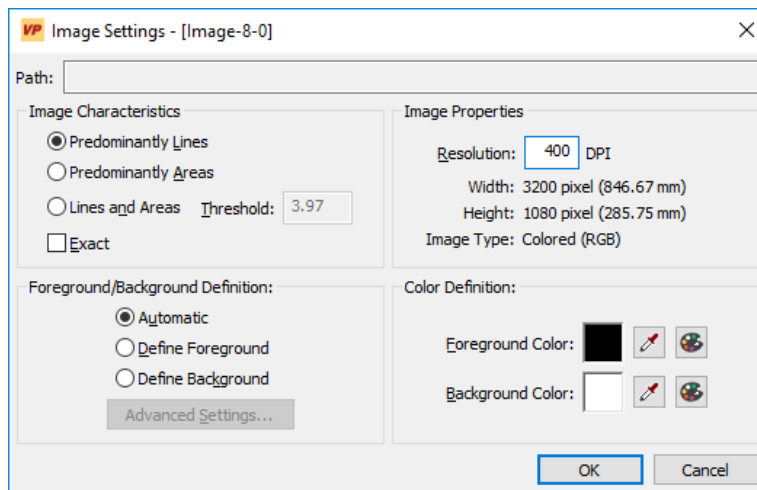
Especially with dense contour drawings containing thin contour lines you can set this parameter to **on (/E 1)** in order to increase the preciseness of following the contours. Be aware though, that this setting will increase the amount of vertices with polylines significantly and also the amount of you vector data!

Image Properties

Displays **Resolution (/DPI)**, **Image Size** in pixel (**Width** and **Height**), and **Image Type**.

Gray Scale and Color Images

The basic image settings dialog opens like this:



The upper sections are the same as with b/w raster files. The image specifications (path, resolution, image size, and image type) are displayed. Define the Image Characteristics according to the prevailing entity type in the image.

In the lower sections you can set the **Foreground/Background Definition** and the **Color Definition**.

Foreground/Background Definition

Since gray scale and color images contain multiple gray scales or colors, the foreground color needs to be specified. The advantage of defining the foreground color of the image individually is that it allows to select color patterns (i.e. multiple colors) to serve as "one" active color. The image can then be treated like a b/w raster file and the foreground color may be traced, converted, or used to select entities or snap to entities while editing. You can save a color pattern definition to a file and re-load it at any time to the same image as long as the color palette of the image has not been modified (e.g. with color reduction functions). This way you can change the foreground color definition with respect to the entities you want to trace, redraw, vectorize etc.



It is highly recommended to only use uncompressed raster formats or lossless compression formats when scanning document originals! Do not use JPEG or similar compression formats implying losses of information.

Use the **Color Reduction** function first in order to reduce the amount of colors as far as possible - especially minor colors should be converted to their nearest major colors, thus creating images with significantly less colors without a loss of information.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

You have the choice between three different definition modes:

Automatic /C 0

An automatic algorithm calculates which colors are foreground colors and which colors are background colors.

Define Foreground /C 1

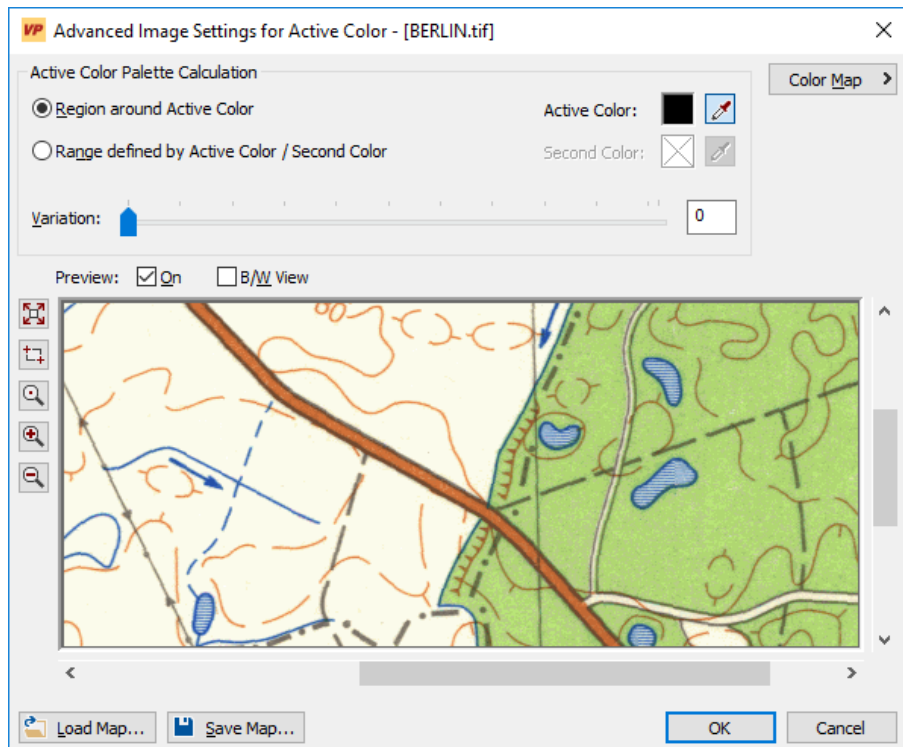
The colors set with **Advanced Settings** are treated as foreground colors and, thus, form the active pixels which can be picked and modified.

Define Background /C 2

The colors set with **Advanced Settings** are treated as background colors and, thus, form the inactive pixels which compose the document's "paper" space.

Advanced Settings

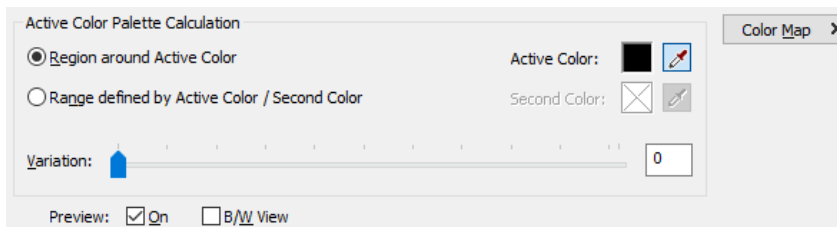
With most images it will be very difficult or even impossible to reduce the colors to an extent that different types of entities are assigned to different but solid colors. Instead, you need to select a color pattern in order to group all major pixels of an entity into the active color. Clicking the advance settings button brings up an extended dialog:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Active Color Palette Calculation

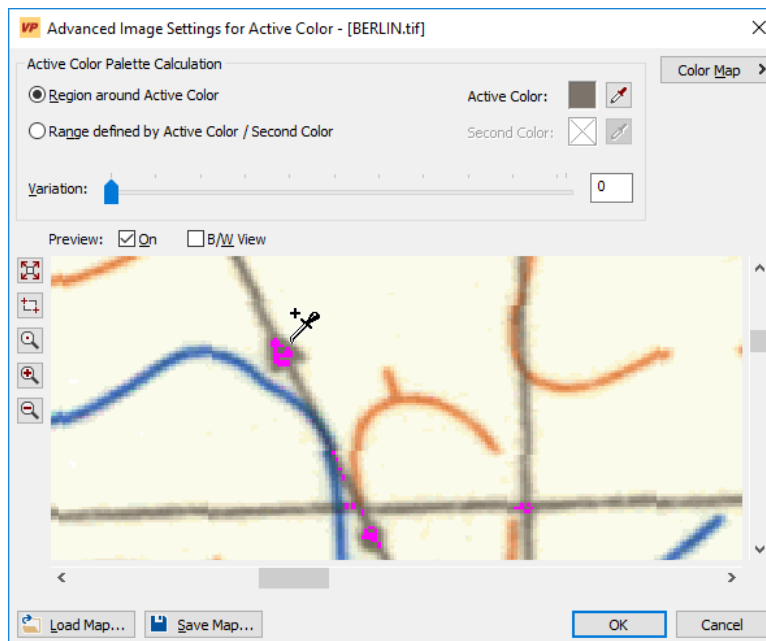
Use the tools from this section to define the active color:



When an active color has not been defined in the previous dialog, yet, use the pipette cursor button and pick a new active color from the image. Zoom functions will support your selection.

Region around Active Color

Click this radio button and pick a representative color from your image. This color appears at the color indicator and all pixels having this color are displayed with the complementary color in the image:



Use the zoom buttons to view the most significant area of your drawing for picking the reference color.

An expanded definition of the active color will be possible with this function. It will generate a color pattern based on the color region of the active color. Use the slider control to define the color region (see below **Variation**), or pick single additional colors from the image for fine tuning your selection.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

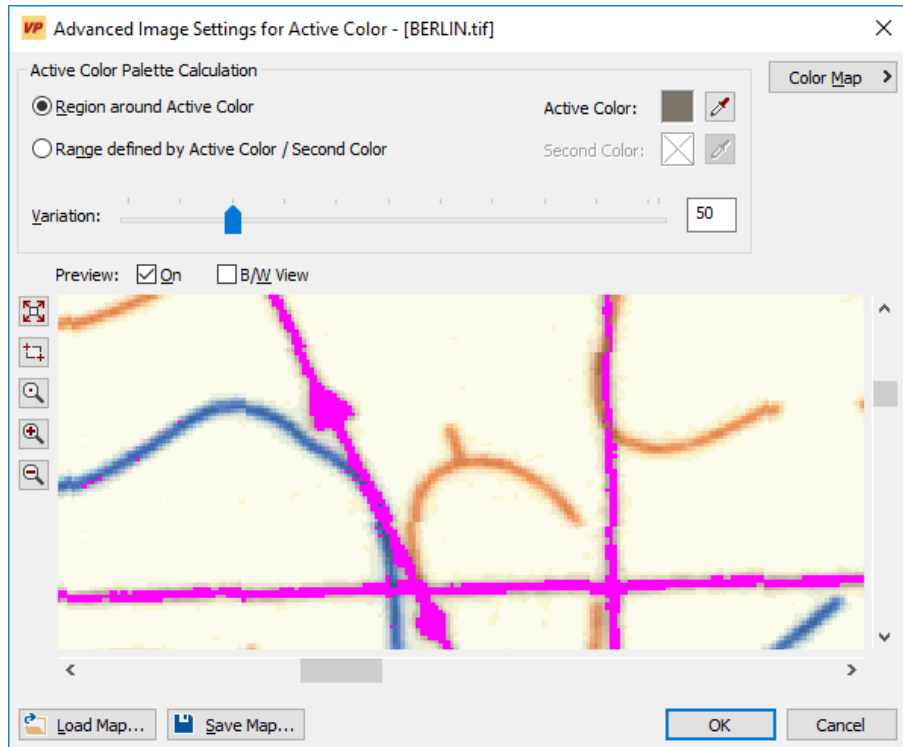
Variation

Moving this slider creates a widening color corridor around the selected color. Colors with an increasing distance to the selected color will be included and added to the color pattern which composes the active color (more and more pixels are getting highlighted).

Range defined by Active Color and Second Color

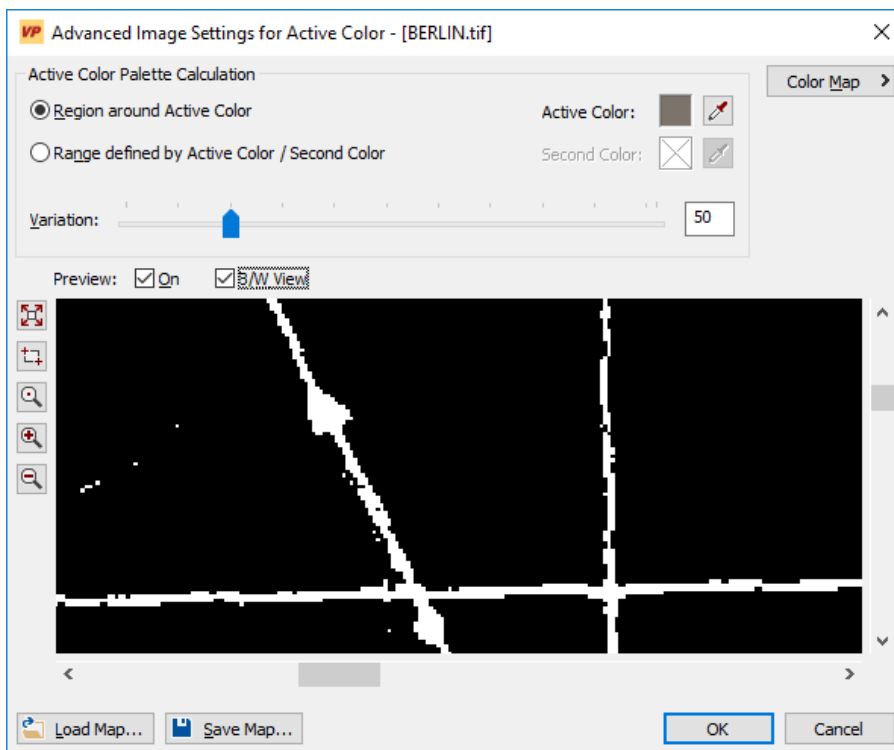
Click this radio button if the entities in your image are composed from a variety of lighter and darker colors of the same kind, or if they are composed from two base colors. You can define the color corridor's direction by selecting the colors at both ends of the range.

Use the zoom and pan functions for picking the active color and the second color. Then use the variation slider to create a proper entity selection:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

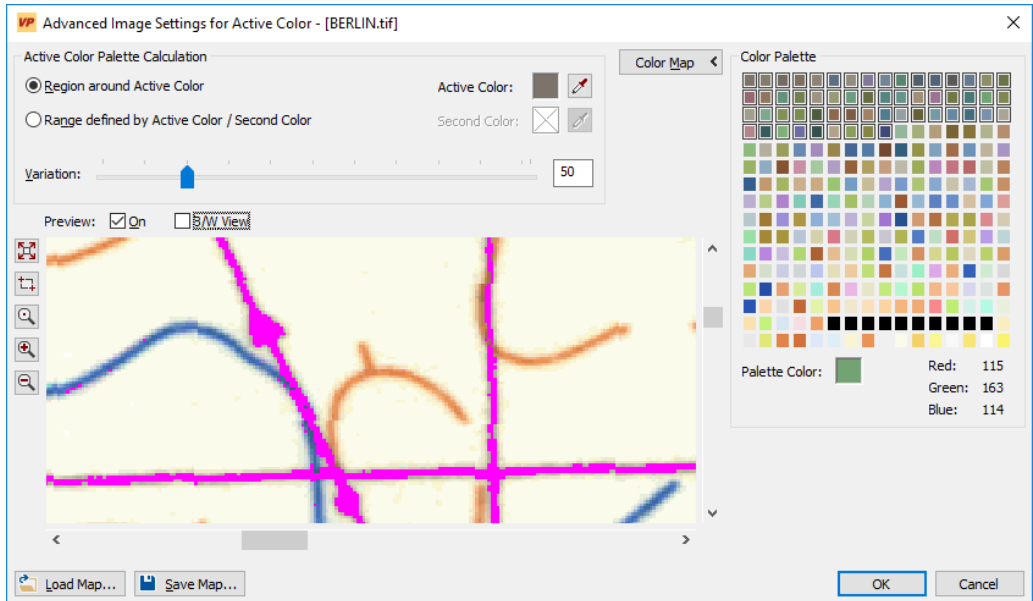
Switching to the **B/W View** you can check the quality of color pattern selection:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Color Map

Clicking this button adds another section to the dialog and displays the palette of the active image. All selected colors composing the active color are marked:



The palette has been organized in a way that the active color selected first is in the upper left corner, while all other colors are arranged according to their distance to the active color. Colors in the two upper display rows have been selected for the second color and with the slider variation.

Additional colors have been selected and picked to avoid interruptions along entities.

Save Map

Once you have composed a proper active color you can save this color map for later use. This allows for creating different maps for different entity selections.

Load Map [FILE]

Re-loads a previously saved map for an active color setting. A re-load is only possible if the palette of the image has not been modified after the map was saved.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Foreground Color

Specifies the color that is used to rasterize modified raster entities back into the image.

Pick Color

If your gray scale or color image contains only few colors, each of which represents a different type of information entity (for example: roads are straight red, rivers are straight blue, forest areas are green etc.), you can pick the color of your choice from your image (pipette cursor button) or the image palette (image palette button) and set this color as foreground color. The selected color or gray scale value will be indicated.

Background Color

For erasing or moving entities in gray scale or color images you can specify the background color to be filled in instead of the former entity.

Pick Color

Pick the color from your image (pipette cursor button) or the image palette (image palette button).



The background color must be different from the foreground color!

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Select Active Image



Toolbar: **Image Settings**

Menu: **Edit ► Select Active Image**

CMD: **VPSELECTACTIMAGE [NAME]**

This function will be enabled if a document contains more than one image. Select an image to become the active image and click this icon. You may also select the active image from the current image selection box:

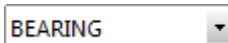


Image Palette

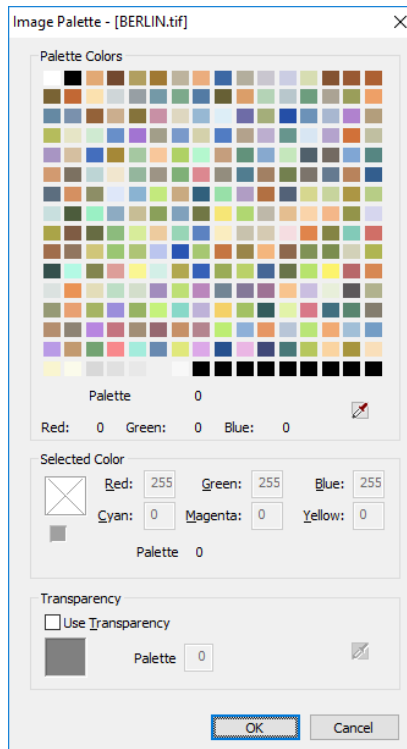


Toolbar: **Image Settings**

Menu: **View ► View Image Palette**

CMD: **VPIMAGEPAL**

Displays the current palette of the active image (maximum 256 colors):



Palette Colors

This section shows all colors contained in the image. If you move the cursor over the color fields (without selecting), the RGB values and the palette position of the respective color are displayed below the palette matrix.

Selected Color

Clicking a particular color displays its RGB and CMY values. You can modify colors by entering new values into the corresponding fields. Changes will be displayed in the color field as soon as you remove the cursor focus from the field. Instead of modifying the selected color directly, you can also use the Windows Color Dialog.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Transparency {on/off}

If you want a color to be transparent switch this option to **on** and select a palette index. The color can be selected from the active image using the pipette button. The option is disabled for true color images. The transparency setting is used e.g. when working with the GIF file format.

Default: **off**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Create B/W Image



Toolbar: **Image Settings**

Menu: **Raster, Color ► Create B/W Image**

CMD: **VPCREATEBWRASTER [/D|DELETE 0/1]**

When a colored image is the active image this command creates a B/W version of the image as a separate raster object overlaying the original image. If no color map has been assigned the automatic settings will be used. The original color image can be deleted with entering **/d 1** in the command line or in a script.

Display B/W Image



Toolbar: **Image Settings**

Menu: **View ► B/W Display**

CMD: **VPBWRASTER**

When a color map has been assigned to the active image this command displays the image as if it were a B/W image. The command is a switch. A second call will restore the original color view of the image.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Attributes - General Information

Attributes contain additional information directly linked to geometrical entities (raster and/or vector). This data can be used for certain information about the entity. For example, the attributes of a polygon representing a house placed on a piece of land may contain information about the address, the owner, the size, etc. The list of **Attribute Fields** assigned to the **Layer** of the entity defines the quantity and kinds of attributes. Attributes are compatible to other Geographical Information System (GIS) software packages; they can also be used for other purposes like Facility Management (FM). To export this use either the **SHP** file format (exchange format of ESRI ArcInfo) or the **MIF** file format (exchange format of MapInfo).

For performance reasons attributes are stored in a memory database and not in a disk based database. However, the registry key `..\DBManager\MemoryDatabase` can change the mode. In this case the database is stored in the user's temporary directory.

Attribute Manager

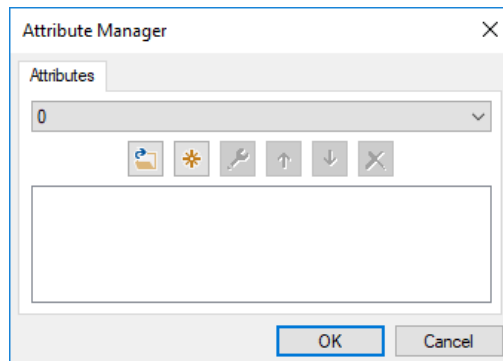


Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Attribute Manager**

CMD: **VPMANAGEATTRIBS ► Dialog**

Allows you to import, create, modify, and delete **Attribute Fields** for a **Layer**.



From the Combo Box choose the layer (e.g. Rail) for which you want to add/edit/delete attribute fields.

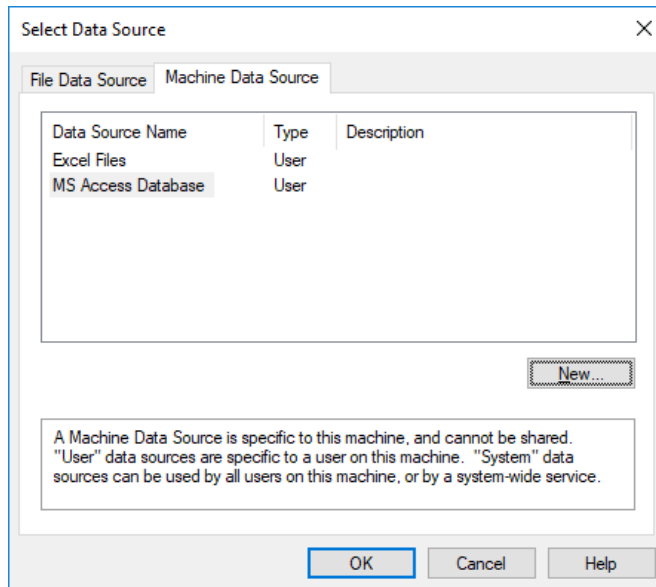
<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Import Fields From Existing Database

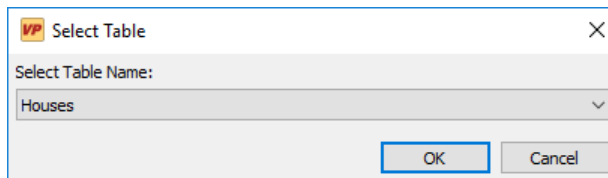


Click this icon and select a data source file. This could be either a **DBF** file, the database file of the Shape File Format (SHP), a **MID** file of the MIF file format, or an ODBC compliant database (like Microsoft Access MDB).

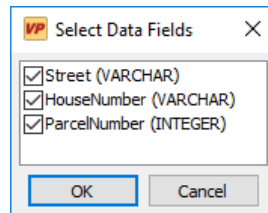
In case of **DBF** or **MID** a directory select dialog pops up to choose the directory where the **DBF** or **MID** files of an existing project reside. Otherwise the standard Windows dialog **Select Source Data** appears:



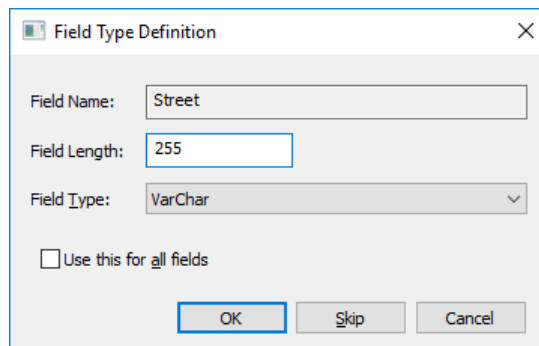
On **OK** the dialog for selecting a table opens. The field definitions of one table at a time can be imported.



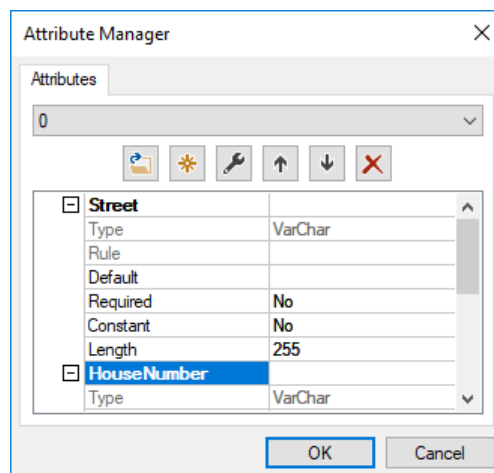
In the following dialog **Select Database Fields** clear the checkmarks of fields not to be imported.



In some cases the **Field Type Definition** dialog shows up for modifying the field type. This happens if the field type used in the database is non-standard and therefore not recognized by VP software:



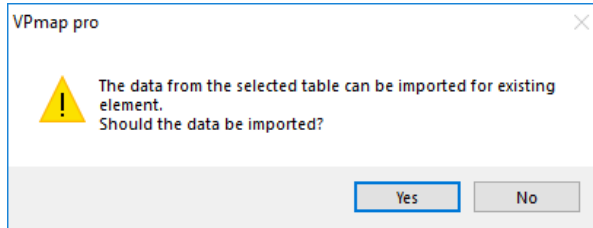
The selected attribute fields will be imported and displayed with their field specifications.



<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

To also import field data, apart from the field definitions, you need to proceed as follows:

First, an attribute needs to be defined which has the same name as the first field in the table you want to import. This attribute needs to be „unique“, i.e. each element has to have a different value. If this is compliant the following message appears after importing the field definitions:

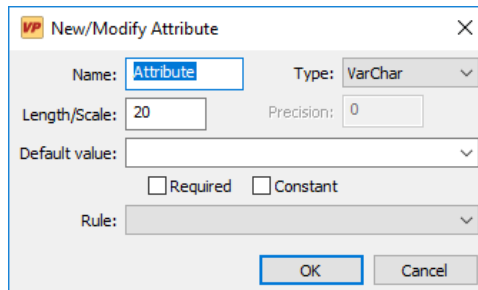


Upon confirmation the data will be imported and will be assigned to the present elements. The data value must comply with the existing attribute value.

Add New Attribute Field



Clicking this icon opens a dialog to specify a new attribute field:



Enter the desired field **Name** and specify **Type**, **Length/Scale**, and **Precision** if necessary.

Standard ODBC field types are:

Char	Float
Numeric	Real
Decimal	Double
Integer	Date Time
Small Int	Var Char

A **Default Value** can be preset. The VP software allows to specify some special **Default Values** which will be automatically computed from the entity properties:

@Angle	the angle of a block, ellipse, mtext or text
@Area	the area of a polygon, closed polyline or circle
@BlockAttribute	the value of a specified block attribute

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

@Circumference	the circumference of a polygon, closed polyline or circle
@Color	the color name of the entity, object
@Doc.Name	the name of the document
@Elevation	the elevation/Z-coord. of a polyline, polygon or point
@Extents	the extents of the element
@ExtentsX	the element extents in x-direction
@ExtentsY	the element extents in y-direction
@Linetype	the linetype name of the entity, object
@Point	the point type
@ObjectType	the object type name of the entity
@String	the string content of a text entity
@X-Position	the x coordinate of a block, mtext, point or text
@Y-Position	the y coordinate of a block, mtext, point or text

Choosing one of the above values causes the field to be set to the status **Constant**.

Each database field can be defined as

Required	{on/off}
Constant (value)	{on/off}

A **Constant** value is not editable by the user, a **Required** field must be set to a valid value.

To minimize input effort you can also setup a **Rule** for a field. Available Rules are:

- **Auto-Increment/Decrement:** With each entity/object you add the current value will be incremented/decremented. An additional dialog allows to set the start value, the step size, and the direction (increment or decrement). Can be used for all field types, but only if the field input are numbers.
- **Restricted Range:** An additional dialog allows to specify a valid range of data for this field. Can be used for all field types, but only if the field input are numbers.
- **Boolean:** The field can only contain data of the type Yes/No, Y/N, True/False, T/F or 1/0. You can select between these options in an additional dialog.
- **List:** The field can only contain predefined values. Enter values in a separate dialog after confirming with **OK**. You can also specify, whether new values will be accepted and whether a new element color can be assigned automatically according to the element's list value. For each list entry you can also specify a character which will then simplify your data entry by using **[Ctrl] +<character>** as a placeholder. Specified lists can be saved and they can be reloaded to be used in other documents.
- **Boolean/Color:** As in **Boolean**. Additionally, elements will be assigned colors as specified in Boolean.
- **Object Color:** Set an index value from 0 to 255 for a color selection from the standard color palette. This color will be assigned to an object.

OCR: Activates text recognition within the raster image region. You can specify text recognition settings in a separate dialog after **OK**.

This rule is only recommended for newly generated polygons. Subsequent settings for existing elements will be ignored.

Modify Attribute Field Properties



Select a attribute field and then click this icon. A similar dialog as above opens containing the field properties for modifications.



Attention: Some modifications like changing the **Name** or the **Type** of a field may lead to a loss of attribute data of already existing entities/objects from this layer.

Modify Field Order



Allows to move a attribute field **up** or **down** in the list order.

Delete Attribute Field



Deletes the selected attribute field.

Attribute Bar



Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Show Attributes**

CMD: **VPSHOWATTRIBS ► (Toolbar)**

The **Attribute Bar** allows to view/edit the attribute data of an entity. If you add a new entity to the database by **Tracing** or **Drawing** then the focus switches automatically to the first editable attribute field of the **Active Layer** for data entry. Use the Windows functions keys **[Tab]**, **[Shift]+[Tab]**, **[Enter]**, **[Up]**, **[Down]** to move through the list of the attribute fields.

For a faster entering a list of last entries is available for all fields, unless a specific rule has been assigned to them. Also, **[F2]** or the **[...]** button allows for a text recognition (raster image) or a text transfer (vector data). Handling is described in detail in the command line and in the status bar.

If no entity is selected then the **Attribute Bar** displays the list of the attribute fields of the **Active Layer**.

When several elements are selected their attribute values can be viewed and modified simultaneously. All elements will then receive a new value for the modified attribute field. When selected elements contain different values in one or more attribute fields this will be indicated with the term **“*VARIES*”**

When a rule is used for several fields to change the element color, you can use the context menu (right click on the respective field) to specify which field is to become active in the current view.

Attribute Inspector (only Windows)



Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Inspector**

CMD: **VPINSPECTOR ► (Select Entity)**

Move the cursor over an entity and remain there (for about half a second) until a tool tip with the attribute data of this entity appears. If you want to change this data click onto the entity and edit the data in the **Attribute Bar**.

Query Attributes (only Windows)



Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Query Attributes**

CMD: **VPQUERYATTRIBUTES ► Dialog**

CMD: **VPQUERYATTRIBUTES <QUERY>**

Query

A complete SQL query to send to the database. If the query contains quotes like " or ' the query has to be quoted using ` or ` characters!

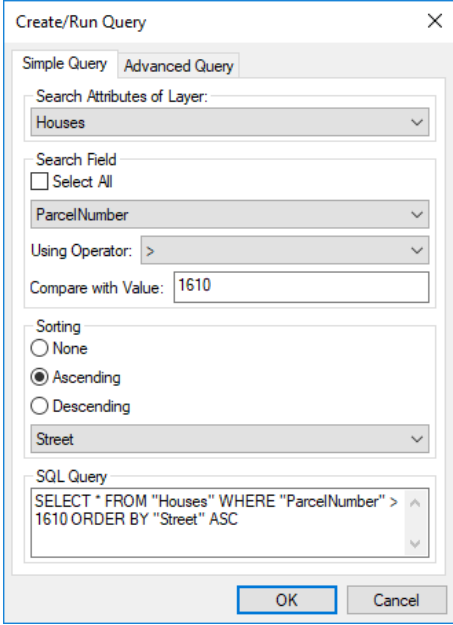
Example:

```
VPQUERYATTRIBUTES `SELECT * FROM "A Table" WHERE "Attr." LIKE '%Test'`
```

The dialog **Create/Run Query** opens; depending on the last used tab – **Simple Query** or **Advanced Query** – this tab opens again:

Simple Query

This tab presents an easy way to find elements using standard queries. No knowledge of SQL is necessary to build a valid query which will be executed when pressing **OK**.



Search Attributes of Layer

Specifies the layer where to search for attributes.

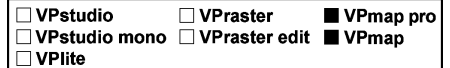
Default: **Active Layer**

Search Field

A field can be specified using a combo box. All attributes of the selected layer are available as search fields. To show all values without filtering use the option **Select All**. A filter operator can be specified with **Using Operator**. Depending on the type of field there may be different operators in the combo box. Available operators are:

LIKE (Text only)	Equal text using % as a wildcard character.
NOT LIKE (Text only)	Unequal text using % as a wildcard character.
<	Less than
<=	Less than or equal
>	Greater than
>=	Greater than or equal
=	Equal
!=	Unequal

Compare with Value is the operator's parameter.



Sorting

Specifies how results will be sorted. You can choose no sorting with **None**, and **Ascending** or **Descending** for a specific attribute.

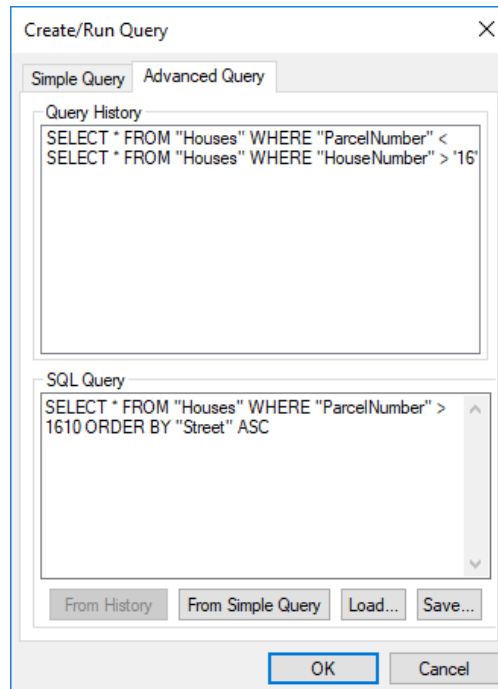
Default: **Ascending, First attribute of the layer**

SQL Query

The generated SQL query is displayed as a reference here.

Advanced Query

This tab presents a way for the experienced user to make arbitrary SQL queries which are supported by the underlying SQLite database. For a complete description of the available SQL commands and the referring syntax please refer to <http://www.sqlite.org/lang.html>



Query History

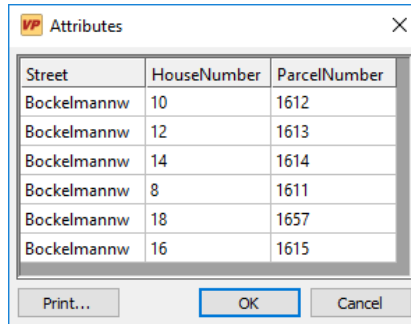
The last 20 queries used. Double-click a query or select it and use the **From History** button to transfer it to the edit field **SQL Query**. With the latter it can be modified or reused.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

SQL Query

The SQL query that shall be executed when clicking on **OK**. You can transfer a query from the **Simple Query** tab by pressing **From Simple Query**. Queries can be loaded and saved to text files using **Load** and **Save**.

To show the results, the dialog **Attributes** shows up:



Street	HouseNumber	ParcelNumber
Bockelmannw	10	1612
Bockelmannw	12	1613
Bockelmannw	14	1614
Bockelmannw	8	1611
Bockelmannw	18	1657
Bockelmannw	16	1615

Buttons: Print..., OK, Cancel

The query results cannot be edited directly! To change attributes click the row of the desired value you want to edit and use the **Attribute Bar** to change the desired attributes.

When clicking into a field - or selecting elements (rows or columns) - the zoom window is adjusted to display the corresponding elements. **OK** and **Cancel** close the dialog and keep elements with selected fields as the active selection. **Print** opens a print dialog to print attributes.

Export Attributes



Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Export Attributes**

CMD: **VPEXPORTATTRIBUTES ► Dialog**

CMD: **VPEXPORTATTRIBUTES /f|Filter <filter name> /o|Options <filter options>**

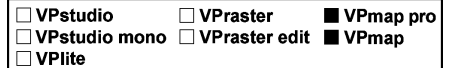
This command exports the attributes of all layers to an existing database.

When called without parameters, a dialog opens with a list of available database export modules (filters). After successful selection, the settings dialog of the selected filter is displayed (or several dialogs, depending on the filter). The export starts with the termination of the filter configuration.

Command line parameters

Filter Name (/f): Name of the database export module.

Filter Options (/o): Options for the database export module.



Create filter options with the help of the script generator: Start the script generator (menu **File ► Create script...**). Select **VPEXPORTATTRIBUTES** from the list of **Available Commands** by double-clicking on it - the command will be added to the list **Selected Commandst** and the corresponding options will be displayed.

Now select a **Filter** on the right and click on the small button in the **Options** section to open the corresponding filter options dialog. Here you can make the desired settings. When you close the dialog, the filter options are displayed as text. This text can be copied and used as parameter.

Review Attributes

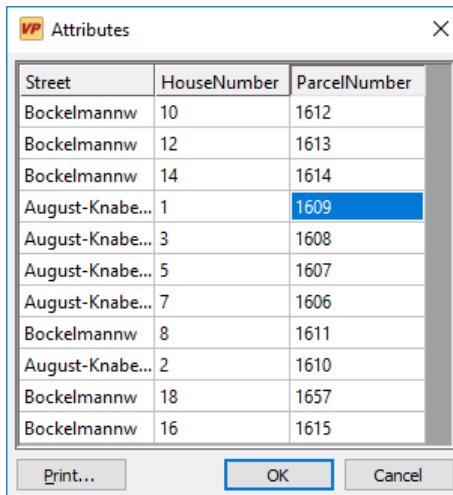


Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Review Attributes**

CMD: **VPREVIEWATTRIBUTES ► Dialog**

All attributes of the active layer are displayed in a dialog where attributes can be changed. Just double-click into a field to edit it. When clicking into a field or selecting elements (rows or columns) the zoom window is adjusted to show the corresponding elements. **OK** confirms the changes and keeps the elements as active selection, whose fields are selected. **OK** and **Cancel** close the dialog and keep elements with selected fields as the active selection. **Print** opens a print dialog to print attributes.



Add Labels

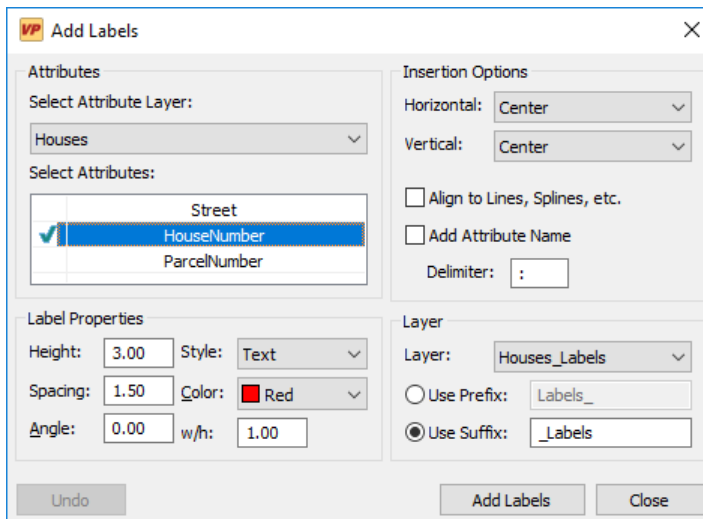


Toolbar: **Attributes**

Menu: **Vector ► Attributes ► Add Labels**

CMD: **ADDLABELS** ► Dialog

Inserts Attributes as text (labels) in the drawing. Attributes will become permanently visible. A dialog appears to select Attributes:



Attributes

Select an **Attribute Layer** first, and activate one or more attributes from the list by double-clicking them.

Horizontal, Vertical

Label alignment according to the element's geometric center.

Align to Lines, Splines, etc.

Labels will be aligned in parallel to lines, polylines, or splines. Using horizontal alignment a line's start, end, or center point (polyline, spline) can be specified as the insertion position. Vertical alignment specifies the label's position according to the line or the segment (above, below centered).

Add Attribute Name

When set **on** the Attribute's name will be inserted in front of the label. A **Name Delimiter**, i.e. a character separating the name from the value, can be added.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Layer

The label's target layer. You can use an existing layer or define a new layer. A new layer will be a copy of the selected Attribute layer with additional name details (see below **Layer Suffix / Prefix**).

Add Labels

Inserts the selected Attributes as text labels. When labels of the selected Attribute layer have been inserted in the drawing before, they will be deleted and replaced by the new selection.

Undo

The last insertion operation will be cancelled. Possibly deleted labels will reappear.

Advanced

Displays / hides advanced options.

Label Properties

Label text properties can be specified, such as **Angle**, **Height**, **w/h**, **Style**, **Color**. You can also modify the **Spacing** of label lines..

Layer Suffix / Prefix

Characters preceding or following the new layer name (see above **Layer**).

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Entity Selection and Handling

Vector Entity Selection

The selection mode is CAD-like. Pick any vector entity. The selected entities are displayed in a highlight mode (dashed) and contain grips (handles) for entity modifications. The base point grip is marked with a cross. All standard CAD operations are possible.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	<input type="checkbox"/> VPraster edit	■ VPmap
■ VPlite		

Raster Selection



Unless raster editing is limited to the **Active Image** (see **Section 8**) any raster entity or object can be selected regardless to which raster image it belongs.

There are 2 ways of selecting raster entities/objects:

- **Direct Raster Selection** (Pick, Window, Crossing) for single raster entities (line, circle, arc, polyline etc.) and,
- **Raster Object Selection** for raster entities consisting of complex raster structures, which should not be broken up into their entities.

Raster selection with gray scale or color images will be handled like b/w images once the **active color** has been defined using the function **Image Settings**.

Direct Raster Selection



Toolbar: **Raster Selection Mode**

Menu: **Edit ► Direct Raster Select**

CMD: **VPDSEL**

If switched **on** raster and/or vector entities can be selected using pick mode, windowing, or crossing. If switched **off** only vector entities will be selected.

If switched **on** a toolbar is displayed offering different selection modes:



Blue buttons offer hybrid selections.:

Vector/Raster Selection


Vector/Raster Selection Stop at Intersection

Raster and/or Vector elements can be selected while using pick mode, window selection, cross selection, or polygon (inside or crossing) selection (via context menu).

Click on a Raster element or window selection of a Raster structure

The program will generate Vector elements from the selection including width values. When using the **Stop at Intersection** mode single vectors will end at intersections as existing in the selected Raster structure.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

 When pressing **[Ctrl]** while using window selection all image elements will be selected to one coherent Raster object. This is equivalent to the **Raster Object Selection** with the mode **Window**. **No** vector data will be generated.

Elements are displayed with grips in the Raster selection's current color. Each selected element can be modified just as a „conventional“ vector element.

The remaining selection modes refer to Raster structures exclusively.

 As long as one of these modes are active, the raster selection cursor  is used.

Raster Selection Rectangle



All Raster structures inside a window selection will be selected.

Raster Selection Polygon



All Raster structures inside a closed polygon selection will be selected.

The polygon selection is confirmed with a double click or with **[Enter]**.

Raster Selection Pick



The cursor changes to a **Pipette** symbol. Clicking on the Raster (active color is assigned) will select all Raster structures joined with the click position.

Raster Selection Line



Generates a 2-point line.

The underlying Raster is selected. Crossing Raster structures will be ignored.

Raster Selection Arc



Generates an arc element with three points:

- **First click point** = **Start point arc**
- **Second click point** = **End point arc**
- **Third click point** = **Radius and direction arc**

The underlying Raster is selected. Crossing Raster structures will be ignored.

Raster Selection Circle



Generates a circle element with three points (see above).

The underlying Raster is selected. Crossing Raster structures will be ignored.

With „End Command“ in the context menu (right mouse click), the generated Vector elements will be converted back to Raster elements if elements have not been transferred to a Vector layer.

Default: **on**



If vector entities are located inside the selection area (selected by window or crossing) only vector elements are selected. You need to repeat the selection process for the raster entities (second window or crossing selection).

Direct Raster Selection Settings [F8]



Toolbar: **Raster Selection Mode**

Menu: **Edit ► Direct Raster Selection Settings...**

CMD: **VPDSELSETTINGS ► Dialog**

Opens the **Raster Selection** tab in the **System Settings** dialog. For a detailed description of the dialog and the available options please see **Section 3**.

Raster Object Selection



Toolbar: **Select Raster**

Menu: **Edit ► Raster Select**

CMD: **VPSELRASTER ► Toolbar**


This function allows for selecting more complex raster structures and multiple raster entities combined to a raster object. The following set of icons appear after activating this function for choosing an appropriate raster object selection mode:




The options can also be changed during execution via the command line or via the context menu.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Raster structures generated with any of the selection modes are displayed in the current raster selection color (default: red).


 Repeated selection will expand the object continuously if the "+" button is active. **[Shift]** toggles the actual state temporarily.

 If the "-" button is active while re-selecting any previously selected raster entity or structure this part will be **deselected** from the total selection. **[Shift]** toggles the actual state temporarily.


 **Undo's** the last selection or de-selection command.

 Clicking on this button or pressing **[Enter]** confirms the selection.

Select Rectangle


 The complete raster inside a rectangle window will be selected.

Select Polygon

 The complete raster inside a closed polygon will be selected.


Close the polygon with a double mouse click or with **[Enter]**.

Select Pick Raster

 The cursor is replaced by a pipette symbol. If you click on the raster (with the active color assigned to it) all raster structures connected with the click point will be selected.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Select CAD Entities

 Selects standard CAD entities (line, circle, arc). The cursor changes to a **Needle and Thread** cursor as long as this selection mode is active.

Select Arc

 Generates an arc object by defining three points:

- **1st click point** = **start point arc**
- **2nd click point** = **end point arc**
- **3rd click point** = **arc curvature and direction**

A raster arc underlying the construction arc is selected. Crossing raster structures will be ignored.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Select Circle



Generates a circle object by defining three points (see above).

A raster circle underlying the construction circle is selected. Crossing raster structures will be ignored.

Select Line



Generates an individual 2-point line.

A raster line underlying the construction line is selected. Crossing raster structures will be ignored.

Select Inside Window



Raster elements will be selected if they are located entirely inside the selection window. Elements which extend beyond the frame will be ignored. Crossing raster entities are ignored.

Select Crossing Window



Selects all raster elements which are located completely inside the selection frame, and also those elements which are located only partially inside the selection frame.

Select Fence



Selects all raster elements touched by a selection polyline (fence).

Select Dirt Inside Window



Selects all objects inside a dragged window, except for crossing lines, circles, arcs.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Quick Selection [Ctrl]+[F]



Toolbar: **Properties/Editing**

Menu: **Edit ► Quick Selection...**

CMD: **VPQSELECT ► Dialog**

CMD: **VPQSELECT <Command> [/p|Pick p|a|l|f] [/t|Type <value>] [/prop|Property <value>] [/o|Operator <value>] [/v|Value <value>] [/m|Modify 0|1] [/nor|NoRaster] [/nov|NoVector] [/rdl|Redlining]**

CAD: **_qselect**

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

This function allows for selecting entities through user defined rules. The result is a specific entity selection that can be used for further operations. Also, an existing selection of entities can be reduced or expanded.

A **Command** can be specified for immediate execution after the selection is finished. This option is especially useful for script processing.

When the dialog is suppressed using the **p (Pick)** option you have the choice between three different selection modes:

- /p a:** Pick all elements in the drawing.
- /p p:** Pick elements using the mouse.
- /p l:** Pick last element that has been modified/created. A special registry key (..\Selection\SelCount) controls how many elements from the history are selected when using this option.
- /p f:** Depending on the following filter parameters **/T (Type)** and/or **/prop (properties)** with **/O (operator)** and **/V (value)** one or more elements will be selected. When a selection list has already been set up this will serve as a base.
- /p w** Window selection. The window is specified with these subsequent coordinates: <x1> <y1> <x2> <y2>
- /p c** Cross selection. The window is specified with these subsequent coordinates: <x1> <y1> <x2> <y2>
- /t** Selection according to type of element, such as **Line, Arc, Circle**, etc.
- /prop** Selection according to a specific property of one or more elements. All element properties that are available in the properties dialog are acceptable; e.g. **Layer** and **Linetype**, but also geometric properties such as **Xm** (= x-value of circle center, **Ym** (= y-value of circle center), **R** (= radius).
- /o** Relational operator. Available are: "=" (equals), "<>" (not equal), "<" (less than) und ">" (more than), "*" (name or text comparison with wildcards), and "%" (text comparison for numbers only). Operators are available depending on the individual filter property.
- /v** Comparative value. Depending on the parameters above this can e.g. be a layer name or a number value. When filtering text content you can also use these wildcards: * (arbitrary number of arbitrary characters) and ? (single arbitrary character). When the "% Only Numbers" operator is selected, the value specifies the number of digits before and after the decimal point (e.g.: **/v 4.2** selects all numbers with **4** digits before and **2** digits after the decimal point). **/v 0** selects all texts representing numbers.
- /m** **0:** a new selection list will be generated. **1:** the existing selection list will be changed.. Default value is **0**.

The three additional options **/nor (NoRaster)**, **/nov (NoVector)** and **/rdl (Redlining)** control which basic entity types (raster, vector, redlining) are selected when using the **p** option.

Example 1: Selection of all circle elements with a radius of less than 5 drawing units:

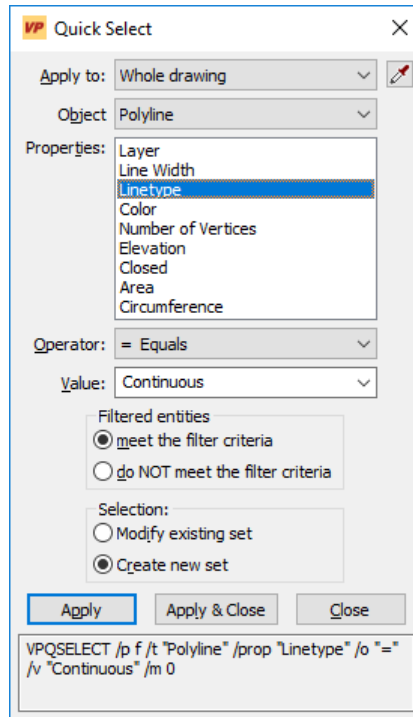
```
VPQSELECT /p f /t Circle /prop R /o > /v 5
```

Example 2: Deletion of all circle elements in layer L1 with a radius of more than 5 drawing units.

This requires two subsequent commands:

```
VPQSELECT /p f /t Circle /prop R /o > /v 5
```

```
VPQSELECT /p f /t Circle /prop Layer /o = /v L1 VPDELETE
```



- Apply to** The filter criteria can be applied to the **Whole drawing** or the **Current selection**. **Current selection** is only available if entities were selected before starting the command.
- Pick Object** Temporarily closes the dialog for selecting entities from the document by using the mouse.
- Object type** Shows the types of the entities in the selection or in the drawing and (if there are different types) **All**.
- Properties** Determines the criteria for filtering. The property list changes according to the selected **Object Type**. Selecting a property changes the available options for **Operator** and **Value**. In order to select a property the **Operator** must not be set to **Select All!**
- Operator** Controls the value range for the filter. Depending on the selected property the following operators are offered: **Select All**, **= Equals**, **<> Not Equal**, **> Greater Than**, **< Less Than**, and *** Wildcard Match**. Possible wildcards are:
- * a sequence of arbitrary characters
 - ? a single arbitrary character
 - # a arbitrary digit.
- Not all operators are available for each property.

Value The property value for the criterion. If known values exist for the selected property they are provided in a selection list. Otherwise type in a **Value**.

Filtered entities meet the filter criteria

Those entities that meet the filter criteria are selected.

Filtered entities do NOT meet the filter criteria

Those entities that do **NOT** meet the criteria are selected.

Selection (Modify existing set)

An existing selection set is reduced or expanded according to the filter criteria.

Selection (Create new set)

A new selection set is generated from the result of the filtering.

Select All [Ctrl]+[A]

Menu: **Edit ► Select All**

CMD: **VPSELALL**

Selects all elements which are visible and not on a locked layer (exception: redlining elements). As a default the command **VPQSELECT /p a** is started. This can be changed using the registry key ..\Selection\SelAllCMD.

Select by Color

CMD: **VPSELBYCOLOR <Color1> [<Color2>] [<Color3>]...**

Select all elements, which have the specified Color. If a entity has the color "By Layer", the color of the layer is compared with the specified value(s).

Snap Functions

Drawing Aids [Shift]+[F8] (only Windows)

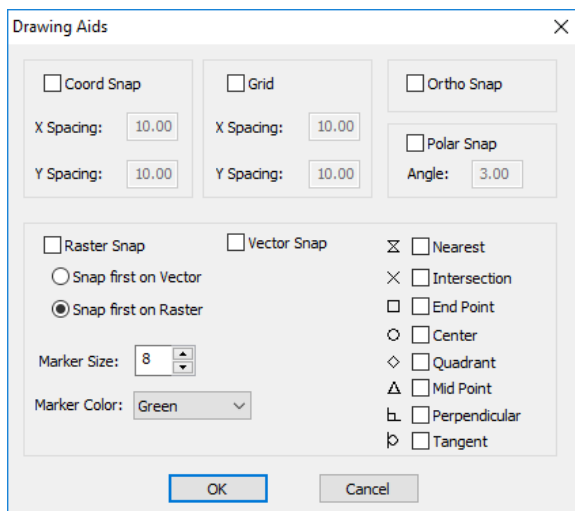


Toolbar: **Snap**

Menu: **Options ► Snap ► Drawing Aids**

CMD: **VPSNAPSETT ► Dialog**

A dialog box opens to specify settings for **Grid**, **Snap to Coordinates**, **Ortho and Polar Snap**, **Vector Snap**, **Raster Snap** and the **Snap Modes**.



Coordinate Snap [F9] {on/off}



Toolbar: **Snap**

Menu: **Options ► Snap ► Coordinate Snap**

CMD: **VPSNAPCOORD ► {on/off}**

CAD: **_snap**

The **Coord Snap** can be specified in the menu **Drawing Aids** (Windows only). The option can be switched **on/off** clicking this icon or using **[F9]**. Values for X- and Y-spacing refer to the user coordinate system.

Default: X = Y = 1

Grid [SHIFT]+[F9] {on/off}



Toolbar: **Snap**

Menu: **Options ▶ Snap ▶ Grid**

CMD: **VPSNAPGRID ▶ {on/off}**

CAD: **_grid**

The **Grid** can be specified in the menu **Drawing Aids** (Windows only). It can be switched **on/off** clicking this icon or using **[F9]**. Values for X- and Y-spacing refer to the user coordinate system.

Default: **X = Y = 5**

Ortho Snap [F10] {on/off}



Toolbar: **Snap**

Menu: **Options ▶ Snap ▶ Ortho Snap**

CMD: **VPSNAPORTHO ▶ {on/off}**

CAD: **_ortho**

The **Ortho Snap** limits the directions while drawing entities to **n x 45°**.

Polar Snap [SHIFT]+[F10] {on/off}



Toolbar: **Snap**

Menu: **Options ▶ Snap ▶ Polar Snap**

CMD: **VPSNAPPOLAR ▶ {on/off}**

The **Polar Snap** corrects deviations to the orthogonal directions (**n x 45°**) within the value **angle** while drawing entities. The value for angle is given in degrees.

Default: **3°**

Raster Snap [F11] {on/off}



Toolbar: Snap
 Menu: **Options ▶ Snap ▶ Raster Snap**
 CMD: **VPSNAPR ▶ {on/off}**

Clicking this icon or using [F11] allows for switching the snap **on** or **off**. The raster snap operates on b/w, gray scale, and color images, where snapping occurs to the **active color** defined in **Image Settings**. The **Snap Mode** toolbar allows for activating snap modes.

Default: off

Vector Snap [F12] {on/off} (only Windows)

In the CAD installation, use the CAD **OSNAP** function, instead.


Toolbar: Snap
 Menu: **Options ▶ Snap ▶ Vector Snap**
 CMD: **VPSNAPV ▶ {on/off}**

Clicking this icon or using [F8] switches the snap **on** or **off**. The **Snap Mode** toolbar allows for activating snap modes.

Default: off

Snap Modes


Whenever the **Snap** function (Windows: **Raster Snap** and **Vector Snap**, CAD: **Raster Snap**) is activated, a toolbar opens for snap mode selection:










If both snaps functions (only Windows) are activated the snap priority also needs to be defined in the toolbar. With CAD installations the raster snap has always priority.

Default: snap priority on vector 

Any of the five available snap modes can be activated, even simultaneously:

 **Nearest** snaps to the nearest point of an element

 **Intersection** snaps to the nearest intersection of elements

-  **End Point** snaps to the nearest end point of an element
-  **Center** snaps to the center of the nearest circle or arc
-  **Quadrant** snaps to a quadrant (0°, 90°, 180°, 270°) of the nearest circle or arc
-  **Midpoint** snaps to the nearest midpoint of an element
-  **Perpendicular** snaps to an element perpendicularly
-  **Tangent** snaps to an element tangentially

The active mode can be changed clockwise to a different snap mode with **[TAB]**. The different snap modes are displayed with their symbols as listed in the dialog box.

Use the selection boxes **Marker Size** and **Marker Color** to modify the symbols' display.

Default: **Marker Size :** **6 pixels**
Marker Color: **Yellow**

With CAD use the corresponding settings or the additional **OSNAP** options for vector entities.

Undo [Ctrl]+[Z] / [Alt]+[Backspace]



Toolbar: **Standard**

Menu: **Edit ► Undo**

CMD: **VPUNDO**

CAD: **_undo**

This function will **Undo** a previous command or function. The command can be repeated for a maximum of 32 steps per page or 50 steps per document. The icon (and menu command) is grayed if to be undone.

Redo [Ctrl]+[Y]



Toolbar: **Standard**

Menu: **Edit ► Redo**

CMD: **VPREDO**

CAD: **_redo**

Repeats the last command or function which has been undone. The icon (and menu command) is grayed if there are no commands in memory.

Delete Entities



Toolbar: **Properties/Editing**

Menu: **Edit ► Delete ► Delete Entities**

CMD: **VPDELETE**

CAD: **_erase**

Deletes the selected entities. You can also use **[DEL]** on your keyboard.

Explode Entities (Origin)



Toolbar: **Properties/Editing**

Menu: **Edit ► Explode Entities**

CMD: **VPEXPLODE**

CAD: **_explode**

Breaks up the structure of the selected elements. **Blocks, Hatch, Polylines, Splines,** and **Text** are exploded and separated into their composing base elements. This allows for corrections of misinterpretations resulting from a vectorization.

Drag & Drop

Use this standard Windows function to move entities, objects, images, drawings between document windows in VP software to or from the symbol library, and to or from other applications.

Supported formats are: RVD (native **VP** format), Bitmap, Enhanced Metafile, Text, CAD (paste only), Windows Explorer files. When two or more files are dragged together from, for instance, the Windows Explorer to the main application window, the **Multiple File Selection** dialog pops up. For more information, please see the **Open** command in Section 3.

With an CAD installation, please see the corresponding manual.

Cut [Ctrl]+[X], Copy [Ctrl]+[C], Paste [Ctrl]+[V]



Toolbar: **Standard**

Menu: **Edit ► Cut**

CMD: **VPCUT**

CAD: **_cutclip**



Toolbar: **Standard**

Menu: **Edit ► Copy to Clipboard**

CMD: **VPCLIPCOPY**

CAD: **_copyclip**



Toolbar: **Standard**

Menu: **Edit ► Paste**

CMD: **VPPASTE [<X>,<Y>]**

CAD: **_pasteclip**

These standard Windows functions allow for exchanging entities, objects, images, drawings between other applications and VP software.

Supported formats: RVD (native VP software format), Bitmap, Enhanced Metafile, Text, CAD (paste only).

For an installation with CAD see the corresponding manual.

Cut/Copy

Click **Cut** or **Copy** and select the entities/objects you want to copy. Confirm the selection with **[Return]**. For raster object selection, use the function **Select Raster** from the context menu (right mouse click). You may also select entities/object first and confirm the selection. Then, click **Cut** or **Copy**.

Paste

Entities appear with their base point attached to the cursor. Place them at the desired position or enter the destination coordinates in the command line.

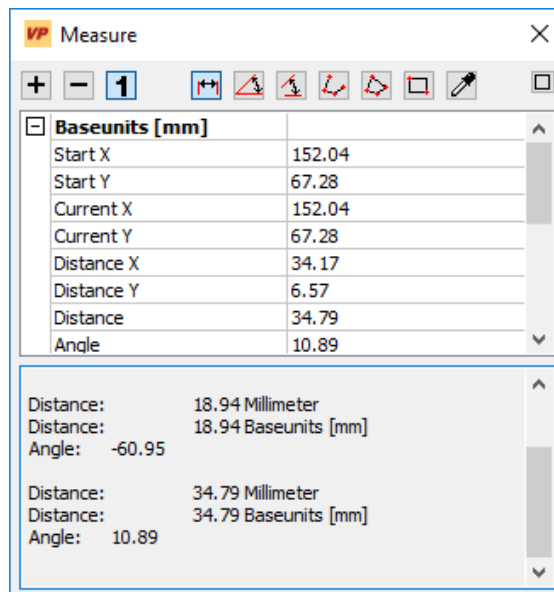
Measure Distance [F2] (only Windows)

Menu: **View ► Distance**

CMD: **VPMEASURE**




Pressing the **[F2]** key opens the **Measure Distance Dialog**. The white area shows the current cursor position and the values are permanently updated when moving the cursor in the work space. The upper section shows the values in base units, either [mm] or [inch] depending on the system settings (**Options - Settings**). The lower section displays the same values according to the settings in the user coordinate system.

Measurement results will be displayed in the lower gray area (pane).










■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Three basic operation types are available which can be set with the left three buttons in the dialog's far upper section:

-  Accumulate the measurement results indicated by (+) in the result pane.
-  Subtract the measurement results, indicated by (-) in the result pane.
-  Take one measurement at a time.

Different values can be measured using the buttons on the dialog's right hand side:

-  Measure the length and angle of a line by clicking two points in the drawing.
-  Measure an angle by clicking three points in the drawing. The center point is the intersection of the two lines forming the angle you want to measure.
-  Measure an angle by clicking four points in the drawing.
-  Measure the length of a polyline by clicking its vertices. Complete the measurement with a double-click or press **ENTER**.
-  Measure the circumference and area of a closed polyline through clicking its vertices. Finish the measurement using a double-click, or using **ENTER**.
-  Measure the circumference and area of a rectangle by clicking two points in the drawing.
-  Click an element. Different properties are displayed depending on the element type.

This function is very helpful for measuring parameter values that rely on information from a drawing. You can click the parameter field and select **[F2]**. The result will be inserted directly into the parameter field.

Redraw [Ctrl]+[R] (Windows only)

-  Toolbar: **Standard**
CMD: **VPREDRAW**

This option redraws the current display.

Properties [F3]



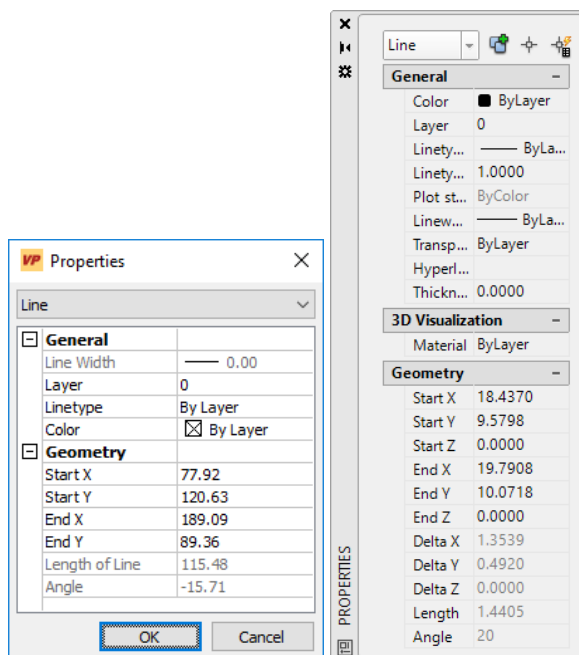
Toolbar: **Properties/Editing**

Menu: **Edit ► Properties**

CMD: **VPPROPSHOW ► Dialog**

CAD: **_properties**

The properties dialog opens and displays the properties of the selected entity or the common properties of entities (left: Windows, right: CAD):



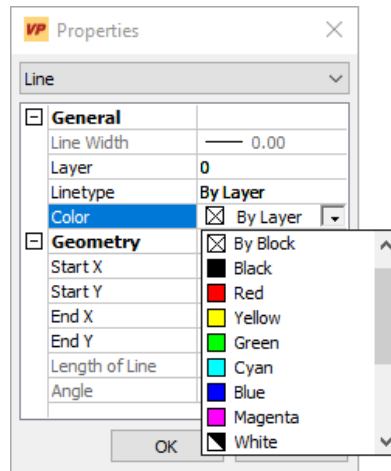
You can modify the properties of any raster or vector entity as far as modifications are feasible.

Selected Raster Entities

Pick-selected raster entities (appearing in red color by default) are converted into special vector entities and remain in that color and condition after leaving the properties dialog. You can either return to the previous state using **Undo** commands or rasterize the entities into the image.

This "intermediate" state allows for modifications. For example, if you assign a raster line to an active vector layer the line becomes a vector entity after confirmation but stays in red color. Using the function **Assign Current Color** the color display can be changed.

Changing Properties



In the **General** field combo boxes open for modifications when clicking into the corresponding value fields. Select from the available choices.

In the **Geometry** field you may enter new values (keyboard or **[F2]** function).

Change Properties

CMD: **VPCHANGEPROP** [/prop|Property <property>] [/v|Value <value>]

This command can be used to change almost any properties of previously (!) selected elements. It is primarily meant for using it with scripts or in a batch process.

- /prop** Specific properties of one or more elements will be changed. All property entries listed in the properties dialog for an element are available, e.g. **Layer** and **Line Type**, but also geometric properties such as **Xm** (= X-value of circle center points), **Ym** (= Y-value of circle center points), **R** (= radius). Exceptions include special properties, such as single vertices of polylines, or dimension properties referring to dimension styles.
- /Value** Defines a new property value.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Group Entities



Toolbar: **Group Entities**

Menu: **Edit ► Group Entities**

CMD: **VPGROUP**

Start the function and select all elements/objects you want to include in a group. Confirm the selection with **[Return]**. You may also select elements/objects first and then start the function. A **Group** will be created according to the settings in **CAD Options**. You may also change these settings from the context menu.

Opposed to a **Block** a selected **Group** will display individual element handles for individual modifications.

Ungroup Entities



Toolbar: **Group Entities**

Menu: **Edit ► Ungroup Entities**

CMD: **VPUNGROUP**

Start the function and select all **Groups** you want to dissolve. Confirm the selection with **[Return]**. You may also select a **Group** first and then start the function.

Edit Group



Toolbar: **Group Entities**

Menu: **Edit ► Edit Group**

CMD: **VPPROPEDITGROUP**

Start this function and choose a **Group** you want to edit. A toolbar appears offering options to **Add** or **Remove** elements:



Choose an option and click on the element you want to add or remove. Click the green checkmark symbol to finish.

Draw Order

Enables the draw order of raster and vector entities relative to each other whereby all raster entities are always positioned behind all vector entities. This means, raster and vector entities/objects form two separate areas of front-to-rear orders, e.g. a raster entity can never be drawn in front of vectors and vice versa.

In Front [Shift]+[Pg Up]



Toolbar: **Draw Order**

Menu: **Edit ► Draw Order ► In Front**

CMD: **VPDRAWFRONT**

The selected entity/entities will be drawn in front (on top of all other entities). Activate this function and select the entities. Confirm the selection with **[Return]**. You may also select the entities/objects first and then call the function.

To Back [Shift]+[Pg Dn]



Toolbar: **Draw Order**

Menu: **Edit ► Draw Order ► To Back**

CMD: **VPDRAWBACK**

The selected entity/entities will be drawn in the back (behind of all other entities). Activate this function and select the entities. Confirm the selection with **[Return]**. You may also select the entities/objects first and then call the function.

Above Entity



Toolbar: **Draw Order**

Menu: **Edit ► Draw Order ► Above Entity**

CMD: **VPDRAWABOVE**

The selected entity will be drawn above a certain reference entity. Activate this function and select the entities. Confirm the selection with **[Return]**. You may also select the entities/objects first and then call the function. Then select the reference entity above the first selected entities should be drawn.

Behind Entity



Toolbar: **Draw Order**

Menu: **Edit ► Draw Order ► Behind Entity**

CMD: **VPDRAWBEHIND**

The selected entity will be drawn behind a certain reference entity. Activate this function and select the entities. Confirm the selection with **[Return]**. You may also select the entities/objects first and then call the function. Then select the reference entity behind the first selected entities should be drawn.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Rasterize Functions

New Raster



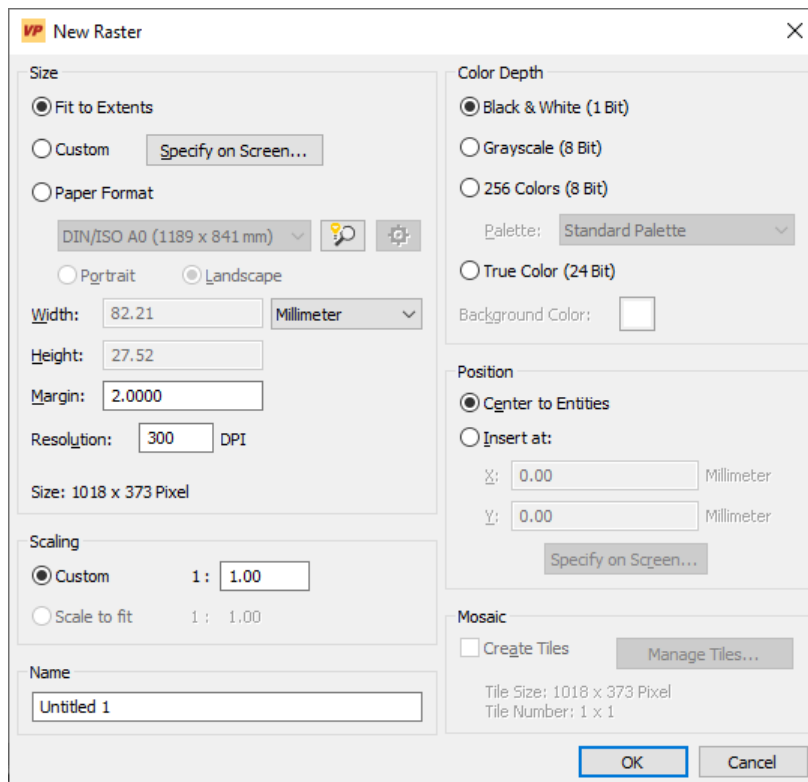
Toolbar: **Rasterize**

Menu: **Raster ► New Raster**

CMD: **VPNEWRASTER ► Dialog**

CMD: **VPNEWRASTER** [/cf|**Color Format** <Color Format>] [/b|**Bckgrnd** <Bckgrnd>] [/p|**Palette** <Palette>] [/f|**Format** <Format>] [/m|**Margin** <Margin>] [/o|**Orientation** <Orientation>] [/w|**Width** <Width>] [/h|**Height** <Height>] [/u|**Units** <Units>] [/dpi|**Resolution** <DPI>] [/ce|**Center** <Center>] [/x|**XPosition**] [/y|**YPosition**] [/gs|**Global Scale** <Global Scale>]

Creates a new "empty" raster image into the current document. A dialog opens for specifications:



The 'New Raster' dialog box is shown with the following settings:

- Size:**
 - Fit to Extents
 - Custom (Specify on Screen...)
 - Paper Format (DIN/ISO A0 (1189 x 841 mm))
 - Portrait, Landscape
 - Width: 82.21, Unit: Millimeter
 - Height: 27.52
 - Margin: 2.0000
 - Resolution: 300 DPI
 - Size: 1018 x 373 Pixel
- Color Depth:**
 - Black & White (1 Bit)
 - Grayscale (8 Bit)
 - 256 Colors (8 Bit)
 - Palette: Standard Palette
 - True Color (24 Bit)
 - Background Color: [White]
- Position:**
 - Center to Entities
 - Insert at:
 - X: 0.00 Millimeter
 - Y: 0.00 Millimeter
 - (Specify on Screen...)
- Mosaic:**
 - Create Tiles (Manage Tiles...)
 - Tile Size: 1018 x 373 Pixel
 - Tile Number: 1 x 1

Buttons: OK, Cancel

You can specify **Color Format**, **Background Color**, **Format** and **Resolution**. You can also define the **Position** of the new raster in the document.

Size Section [/f /o /w /h /u]

Define the image format.

Fit to Extents [/f 0]: The size is calculated depending on the drawing extents so that all elements fit into the new raster image.

Custom [/f 2]: A custom size can be specified. By pressing the button **Specify on Screen** you can draw a window for the size.

Paper Format: Specify the size by selecting a format from the list of standard formats.



[/f 1]: Selects the best fitting format from the list of standard formats so that all elements fit into the new raster image. Also, the best orientation will be chosen.



Opens the **Paper Format Manager**. Existing formats can either be customized or new formats can be created.

Margin [/m]: Adds an additional border around the raster image.

Default: 2 [units]

Resolution [/dpi]: The resolution of the new image in DPI. A higher resolution improves the quality of the raster, but also increases the required memory.

Default: 300 DPI

Scaling Section

Custom [/gs]: Scaling factor for the raster image. The actual size of the raster (the size in pixels) is reduced by this factor. Set a larger scaling factor to reduce the required memory for colored images or large drawings.

Default: 1 : 1

Scale to fit [/sf]: Calculates the scaling factor for the raster image to fit the drawing extents. The actual size of the raster (the size in pixels) remains unchanged.

Name

Enter a name for the new raster image. This name is suggested as the file name for export.

Default: Untitled 1

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Color Section [/cf /b /p]

Choose the color depth for the new raster image: Black & White (/cf **0**, default), Grayscale (/cf **1**), 256 Colors (indexed) (/cf **2**), True Color (RGB) (/cf **3**). If you select 256 colors you can either choose a standard palette, or load an existing palette (e.g. from another raster image), or create a palette with the used layer colors and entity colors.

For a color depth other than b/w you can specify the **background color**.

Position [/ce /x /y]

With checking on **Center to Entities** the new raster is positioned around the entities.

With **Insert at**: you can either enter an offset position in reference to document's origin, or by pressing **Specify on Screen** you can define the insertion position with the mouse.

Mosaic

This functionality is only available for **Rasterize to Paper Format** (see below).

Rasterize



Toolbar: **Rasterize**

Menu: **Raster ► Rasterize**

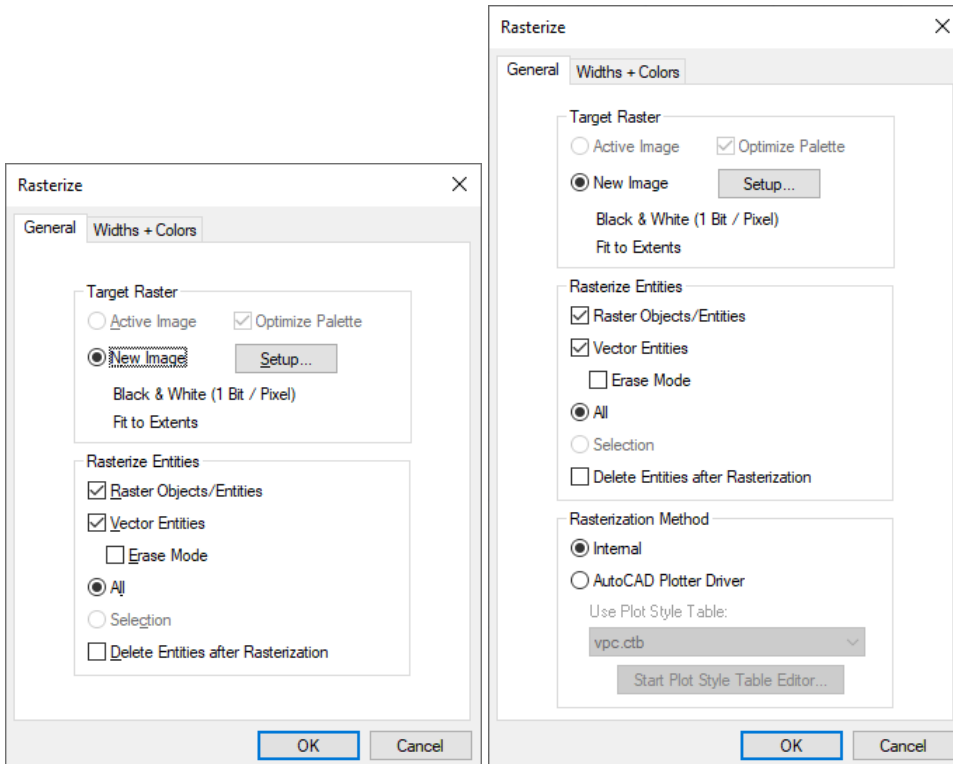
CMD: **VPRASTERIZE ► Dialog**

CMD: **VPRASTERIZE [<RTB-File>] [/dw|Default Width <Default Width>] [/fw|Fixed Width <Fixed Width>] [/r|Raster <1|0>] [/v|Vector <1|0>] [/e|Erase <0|1>] [/s|Selection <0|1>] [/d|Delete <1|0>] [/ct|Color Table <0|1>] [/opt|Optimize Palette <1|0>]**

Rasterizes the selected entities/objects into the target raster image. A dialog opens for specifications of the rasterization process:

General Tab

Left: Windows version, right: CAD version.



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Target Raster Section

The **Target Raster** is always the active image. Use **Rasterize to Paper Format** to rasterize into a new image (see below).

If the target raster is an indexed image you can activate **Optimize Palette** in order to create a new palette for best color representation of all entities that will be rasterized.

Rasterize Entities Section

Click the entity type (**Raster Entities/Objects** and/or **Vector Entities**) you want to rasterize. If you check on **All** all entities of the selected type will be rasterized. Otherwise, you need to select the entities prior to the rasterize command.

With the setting **Erase Mode** to **on** all raster pixels underlying the vectors are erased.

Delete Entities after Rasterization {on/off}: Deletes all selected entities after they have been rasterized.

Rasterization Method Section (CAD only)

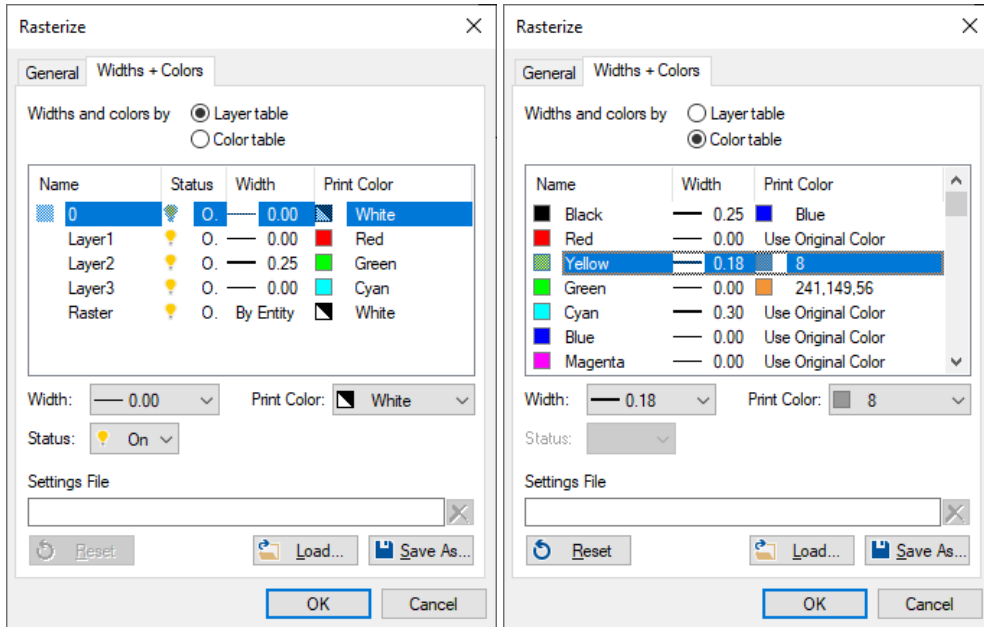
In a CAD environment, the CAD rasterization method (**AutoCAD plotter driver**) is also available. Since this method is very time-consuming, it should only be used if inaccuracies (e.g. missing elements) occur with the **internal** rasterization method.

Internal: VP software rasterization method. Fast, but can be inaccurate with certain elements.

AutoCAD plotter driver: CAD software rasterization method. Time consuming but accurate. A plot style file containing width and color settings is required (default: **vpc.ctb**). With **Start Plot Style Table Editor**, this file can be modified.

Widths and Colors Tab [/dw /fw]

If you use the **AutoCAD plotter driver** method the Widths and Colors tab is switched **off**.



Layer Table mode

The **layer** of elements determines the width and color with which they are rasterized.

All layer settings with respect to the **Rasterize** mode are listed. You can switch on or off layers and modify line width and color of layers for rasterization. Modified values will also appear in the **Layer Manager** and saved to the document. A standard line width can be assigned for all unspecified layers at the command line using /dw. With operator /fw a specific line width can be assigned for all elements.

Color Table mode

The **color** of elements determines the width and color with which they are rasterized.

All colors of the drawing are listed; the corresponding width and print (rasterize) color can be modified.

With **Save As** and **Load** you can save and reload the settings in the **RTB** format (e.g. for processing with the Batch Manager). AutoCAD plot style tables (**CTB** files) can be loaded but not saved.

Rasterize to Paper Format



Toolbar: **Rasterize**

Menu: **Edit ► Rasterize to Paper Format**

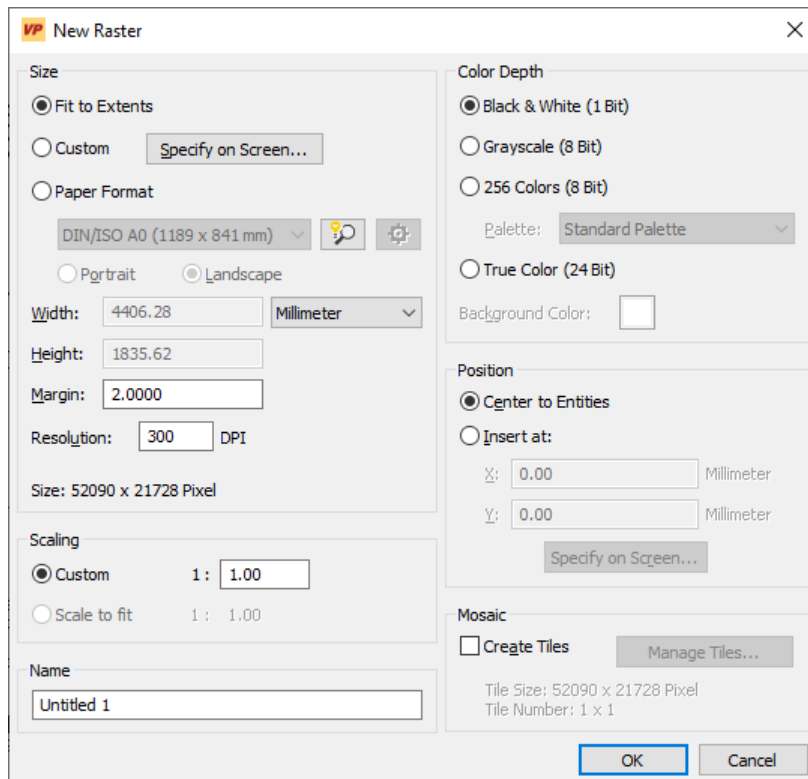
CMD: **VPRASTERIZEPF ► Dialog**

CMD: **VPRASTERIZEPF** **[/sf <Scale to Fit>] [/td <Tiled>] [/tx <TileX>] [/ty <TileY>]**
 + all parameters from **VPNEWRASTER** and **VPRASTERIZE**

This function operates the same way as **Rasterize**, except that a new raster (**Fit to the Extents**) will always be generated. When desired you may select other formats.

Selecting all entities (raster and vector) and checking **Delete Entities after Rasterization** will result in a new raster image fitting to the extents of all entities. The "old" raster will be deleted.

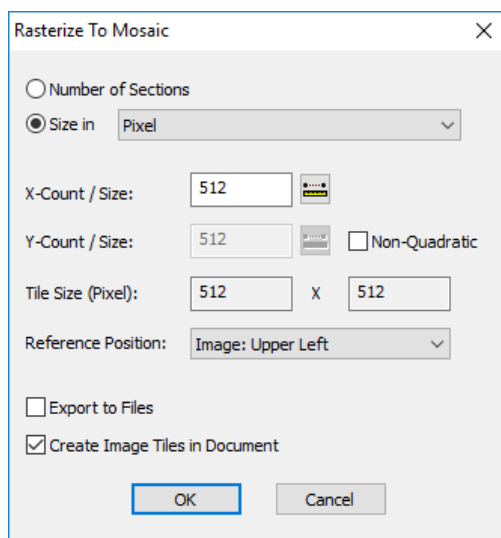
In order to change the size and type of the target raster click the **Setup** button:



The dialog options are described in **New Raster** above. For the Mosaic section see below.

Mosaic

Instead of creating a single target raster image you can optionally choose to rasterize into an array of tiles by activating **Create Tiles**. When clicking the **Tile Size** button the dialog for setting up the tiles opens:



All tiles will receive an equal size. This means that the image might be extended in all directions when creating the tiles.

The number of tiles can be specified directly by selecting **Number of Sections** and entering **X-Count** and **Y-Count**. Alternatively, the tile size can be specified in these two edit boxes when **Size in** and the desired units are selected.

Tile Size shows the currently defined absolute size of each tile in pixels as a reference.

The option **Size in** creates quadratic tiles by default. By setting **Non-Quadratic** to **on** you can specify the tile height independently from the tile width.

Moreover, you may specify a **Reference Position** where the split operation should start. Valid options are:

- | | |
|---------------------------|---------------------------------|
| UCS Grid Position | Origin of the UCS. |
| Image: Upper Left | Upper left corner of image. |
| Image: Lower Left | Lower left corner of image. |
| Image: Upper Right | Upper right corner of image. |
| Image: Lower Right | Lower right corner of image. |
| Image is Centered | Image is centered on the tiles. |

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Export to Files {on/off}

This option allows to export each created tile into a separate file (when set **on**).

On closing the dialog with **OK** you are requested to enter the **base file name** for all split files. Two digits in parenthesis will be appended as (0-0), (0-1), etc. The first digit indicates the row (top to bottom), the second digit indicates the column (left to right).

Default: **off**

Create Image Tiles in Document {on/off}

Set this option to **off** to avoid the creation of the tiles in the document.

This will save processing time and memory if the tiles are exported and are not needed in the document for modifications.

Default: **on**

Command line

/td <Tiled> Create Tiles (1 = Tiles by **Size**, 2 = Tiles by **Number**)
 /tx <TileX> Tile size/number in **x direction** (size in Units, see **New Raster**)
 /ty <TileY> Tile size/number in **y direction** (size in Units, see **New Raster**);
 Default: Tile size x

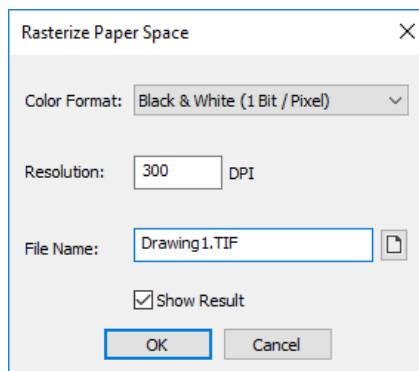
Rasterize Paperspace (CAD only)



Menu: **Raster ► Rasterize Paperspace**

CMD: **VPRASTERIZEPS ► Dialog**

This command is only available with CAD and only when a layout is active. The active layout will be rasterized with all included layout settings, such as paper size, scaling, and plot style table. Final result is a TIF file. The following dialog appears with the command:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Color Format

The new raster image's color format can be defined (b/w, 256 colors, RGB true color). With 256 colors selected an CAD standard palette will be generated.

Resolution

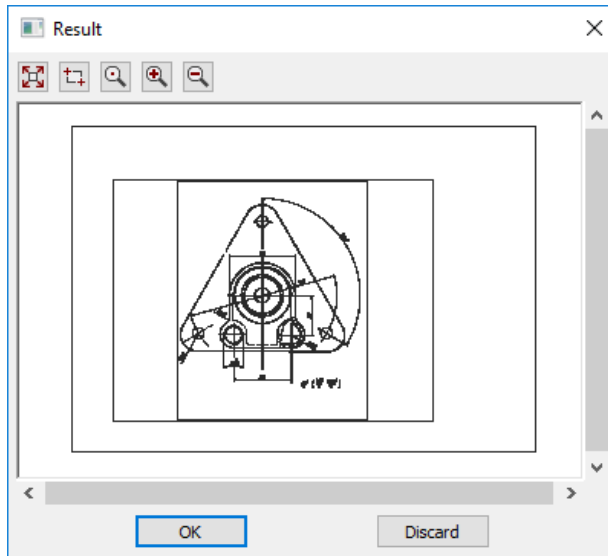
Resolution of the new image in DPI.

File Name

Path and name of the new image.

Show Result {on/off}

Before a new image will be created a preview control window appears when set to **on**:



The function will be completed on **OK**. The result image will be saved. The function terminates without a save with **Discard**.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

SECTION 5

RASTER FILE EDITING, CUT TO DRAWING FORMAT, SCALE FILE

General Information

The main menu **Raster** contains editing functions for all kinds of raster data. Some raster file editing functions on gray scale or colored images need proper **Active Color** and **Background Color** settings. The **Image Settings** dialog will then pop-up automatically. The raster file editing functions always affect the entire raster file. Especially, they provide functions for quick clean-up of scanned raster data.

On gray scale or color images (i.e. non-B/W) some raster edit functions cause a re-sampling/interpolation. In the menu **Options ► Resampling Settings...** this process can be specified.



If a document contains multiple raster images, only the **Active Raster Image** will be processed. **Exception:** In case of an active selection the **selected** raster image or raster object will be processed.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Resampling Settings...

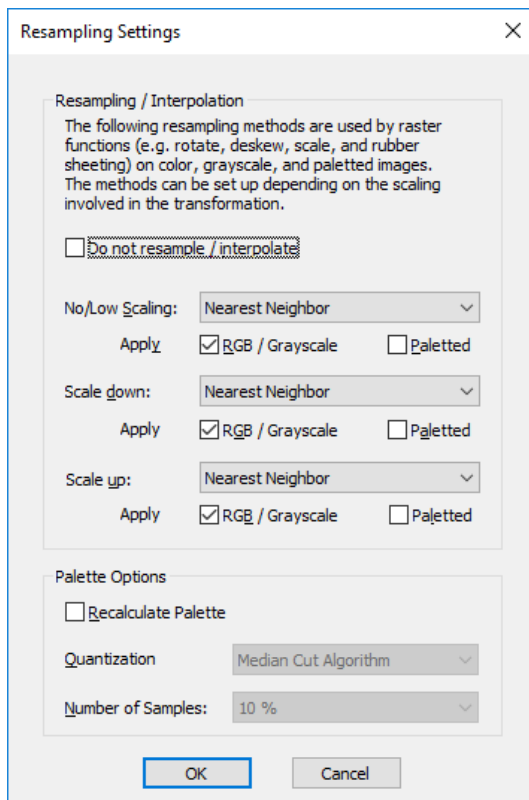
Menu: **Options ► Resampling Settings...**

CMD: **VPROPSETTINGS ► Dialog**

When colored or gray scaled raster images are transformed (e.g. rotated, scaled, or rubber sheeted etc.) a proper setup of the **Resampling Settings** will improve the quality of the output due to the specified method since the program needs to perform an interpolation or integration during the transformation process. Depending on the performed action (scale up or scale down) and the type of the raster data (paletted or true color) different methods should be used.

Any transformation method other than **Nearest Neighbour** might increase the processing time significantly due to extended calculation methods.

A dialog opens for selection of the appropriate process settings:



Resampling / Interpolation

The option **Do not resample / interpolate** allows to turn off the re-sampling process.

There are three levels of scaling: **No/Low Scaling**, **Scale down**, **Scale up**. For each level the re-sampling method can be defined independently. The **No/Low Scaling** selection method will be used if the image size changes by less than 20% up or down (e.g. scale factor approx. 0.8 through 1.2). This applies to rotations and most rubber sheeting transformations.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

The re-sampling methods can be divided into three different types:

Method	Type	Description
Nearest Neighbour	Resample / Interpolate	No resampling (Default)
Bilinear	Resample / Interpolate	Four point interpolation
Cubic Convolution	Resample / Interpolate	Interpolation by a cubic function
Hermite Bell B-Spline Mitchell Lanczos 2 Lanczos 3	Filter , can be used for up and down scaling	The color of an individual output pixel is the filter value (kind of weighted mean value) of a number of input (source) pixels.
4 - Point Gauss 9 - Point Gauss 16 - Point Gauss 25 - Point Gauss 36 - Point Gauss 49 - Point Gauss 64 - Point Gauss 81 - Point Gauss 100 - Point Gauss	Integration , mainly used for down scaling	The color of an individual output pixel is the integrated color value of the colors of a number of (now removed) input pixels.

Use the **Resample / Interpolate** type for No/Low Scaling. For higher scaling values (up or down) the **Filter** or **Integration** methods might significantly improve the results.

Due to the limited number of colors in paletted images, the re-sampling does not have the same effect as in true color images!

The **Apply to RGB / Grayscale** and **Paletted** checkboxes allow to assign the selected re-sample / interpolate functions accordingly.

Palette Options

Recalculate Palette {on/off}

If checked **on** a new palette will be calculated for the image, when a re-sampling method other than **Nearest Neighbour** has been defined.

Quantization Method, Number of Samples

Select the quantization method and the number of samples for the recalculation. The **Quantization Method** defines the way how the palette is calculated from the samples. Again, choosing a high value for **Number of Samples** (e.g. 25%) will increase the conversion time by about the same amount!

Raster Edit Functions

Auto Cleanup



Toolbar: **Raster Operations**

Menu: **Raster ► Raster Operations ► Auto Cleanup**

CMD: **VPCLEAN**

Most raster files from (orthogonal) technical drawings need to be deskewed and despeckled. This functions starts an automatic despeckling, filling raster holes, and deskewing of the active raster file. The maximum size of the removed speckles or filled holes is 128 pixels. Speckles with a regular outline (e.g. dots, dots of dashed lines, decimal dots) will not be removed. Deskewing is performed by selecting a major vertical line in the image.

For color/gray scale images the **Active Image Settings** for active color and background color will be used to remove/fill speckles accordingly.



Auto Cleanup of poor drawings, e.g. weak, thin, and fragmented raster elements will show an increasing degeneration of the image due to despeckling. Be aware of that!

Raster Functions

- **Automatic Cut**
- **Cut Window, Polygon**
- **Crop (Trim) Window, Polygon**
- **Deskew**
- **Invert**
- **Rotate Quadrantal**
- **Rotate Arbitrary**
- **Horizontal Mirror**
- **Vertical Mirror**
- **Remove Speckles**
- **Smooth**
- **Morphology**

These editing functions can be run individually. Some frequently used operations can be combined into a single process (see **All Raster Operations**).

Automatic Cut



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Automatic Cut**

CMD: **VPAUTCUT**

The empty margin regions of a raster image are cut automatically.

Cut Window



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Cut**

CMD: **VPCUTWINDOW ► Define Window**

CMD: **VPCUTWINDOW ► x1 y1 x2 y2**

This function cuts a section from the active raster file for further processing. You determine the desired image area by dragging a Window with the mouse or with specified window coordinates. The new raster file contains information according to the selected window frame.

Cut Polygon



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Polygon Cut**

CMD: **VPPOLY CUT ► Draw Polygon**

CMD: **VPPOLY CUT ► x1 y1 x2 y2 x3 y3**

A polygon area can be defined with the cursor or by clicking on a closed vector polyline. Please note that for the latter option the polyline must be clicked first before starting the **Cut Polygon** function. A new rectangle raster file limited by the extents will be generated.

Crop Window



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Trim / Crop**

CMD: **VPCROP ► Define Window**

CMD: **VPCROP ► x1 y1 x2 y2**

This function erases all raster information from the active raster file **outside** of the selected window area. The original raster file size remains (width and height in pixels).

Crop Polygon



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Polygon Trim**

CMD: **VPPOLYCROP ► Draw Polygon**

CMD: **VPPOLYCROP ► x1 y1 x2 y2 x3 y3**

This function erases all raster information from the active raster file **outside** of the selected polygon area (for selection of polygon areas see above **Cut Polygon**). The original raster file size remains (width and height in pixels).

Deskew



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Deskew**

CMD: **VPDESKEW ► Draw Reference Line**

This function lets you correct small skewing errors that frequently occur during scanning. The whole file is aligned with a **horizontal** or **vertical reference line**.

When you choose this function, the cursor appears with a triple **frame box** to be positioned at the first starting point of the reference line you wish to define. When you click on the first point, the area is enlarged to a ratio of 1:1. The standard screen cursor appears allowing you to accurately pick the starting point of the magnified reference line with a mouse click. Then, the program zooms back to the extents and the cursor returns with a triple frame box again. You apply the box in the same way to pick the end point of the reference line.

The program begins the transformation of deskewing the image. A progress indicator is displayed.



The **Raster Snap [F8]** should be switched off for optimum deskew accuracy.

Autodeskew

CMD: **VPAUTODESKEW**

This function can be initiated from the **All Raster Operations** dialog or by a remote command. The function works on a long vertical line as reference for executing the auto-deskewing on the active raster image. The function is part of the **Auto Cleanup** function.

For color/gray scale images the **Active Image Settings** for active color will be used to find a reference line.

Invert



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Invert**

CMD: **VPINVERT**

This function inverts the pixel color in the active raster file. With b/w raster data black pixel become white and vice versa. With gray scale or color images the composite color will be assigned to each pixel.

Rotate Quadrantal



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Rotate Quadrantal**

CMD: **VPROTATE90 ► Define Top Side (mouse click or NUM keys)**

CMD: **VPROTATE90 <Number of 90° sections: -3 - 3> [/a|All]**

This function rotates the whole raster file by 90°, 180°, or 270°. You use a **rotation box** attached to the cursor to click the side of the image that is to be at the top of the display after the rotation. With the command line option **/a** you can rotate the whole document (**raster and vector data**).

Rotate Arbitrary



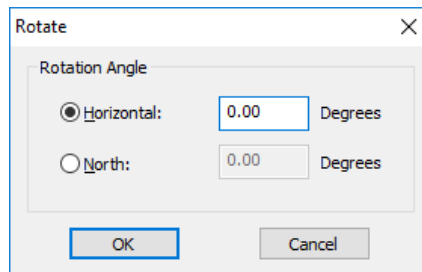
Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Rotate Arbitrary**

CMD: **VPROTATE ► Dialog**

CMD: **VPROTATE <Angle>**

This function rotates the whole raster file through any angle you wish. A dialog box appears where you enter the rotation angle and select the basis of rotation.



Specify the angle by entering the value via keyboard (absolute rotation angle) or by drawing a reference line using [F2]. In the latter case, **North** will rotate the raster file in such a way that the reference line is vertical after rotation. **Horizontal** will rotate the raster file until the reference line becomes horizontal.

Entry: keyboard or [F2]

Range: - 360° - +360°

Default: 0°

Horizontal Mirror



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Horizontal Mirror**

CMD: **VPHMIRROR**

The raster file is mirrored across the vertical axis (y-axis).

Vertical Mirror



Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Vertical Mirror**

CMD: **VPVMIRROR**

The raster file is mirrored across the horizontal axis (x-axis).

Remove Speckles



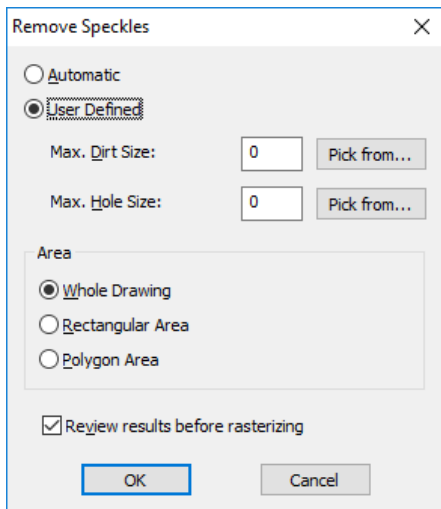
Toolbar: **Raster Operations (All)**

Menu: **Raster ► Raster Operations ► Remove Speckles**

CMD: **VPSPECKLES ► Dialog**

CMD: **VPSPECKLES [A ► Automatic] [D ► Dirt <value>] [H ► Hole <value>] [R ► Review]**

This function **clears** artifacts (unwanted isolated clusters of pixels, i.e. "speckles" or "dirt") from the b/w raster data or **fills** in vacant pixels (holes) in the raster. A dialog box opens to enter a pixel size value for clearing speckles or filling holes. The speckle and/or hole size can also be entered by picking a sample speckle and/or hole from the raster file.



On **OK** you will be prompted to define a window or polygon area. Detected raster elements will be deleted or filled, or the program continues with **Review Results** when activated.

For color/gray scale images the **Active Image Settings** for active color and background color will be used to remove/fill speckles.

Options

Automatic [A | AUTOMATIC]

This mode uses the maximum size of 128 pixels for removing speckles or filling holes. Any found speckles with a regular outline (e.g. dots, dots of dashed lines, decimal dots) will not be removed. If this command is used in the command line including /a, or if it is used in a script, the respective maximum size of 128 can be adjusted with the subsequent **d** or **h** parameters

User Defined

Any isolated pixel area/hole smaller than or equal to the selected **Dirt/Hole Size** will be recognized regardless of its shape.

Dirt Size [D | Dirt <value>]

Specify the number of pixels or pick a reference structure from your image that constitutes the maximum size of artifacts you want to remove. In conjunction with the parameter A (automatic) the max. dirt size will be limited.

Range: 0 - 255 pixels
Default: 0

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Hole Size [H | Hole <value>]

Specify the pixels required to fill the largest hole or pick a reference structure from your image. In conjunction with the parameter A (automatic) the max. hole size will be limited.

Range: 0 - 255 pixels

Default: 0



The maximum limit of 255 Pixels (or 128 for automatic mode) is the recommended default value. For larger values (e.g. due to an image with a high resolution (DPI)) adjust these values in the registry editor (regedit.exe) manually at:

HKEY_CURRENT_USER\Software\softelec gmbh\V9\<VPxx>\[ACAD|WIN]\Rfedit

or

HKEY_CURRENT_USER\Software\softelec gmbh\V16\<VPxx>\[ACAD|WIN]\Rfedit

Values:

MaxSpeckleSize Maximum dirt- and hole size for mode **User Defined**.

MaxAutoSpeckleSize Maximum dirt size for mode **Automatic**.

MaxAutoHoleSize Maximum hole size for mode **Automatic**.



Larger values here will consume system resources (memory) and time in any case. Even if you have not specified the maximum values for dirt and hole size in the dialog or at the command line.

Area

Whole Drawing The whole drawing will be processed.

Rectangular Area Choose this option to perform despeckling only inside a window area.

Polygon Area Choose this option to perform despeckling only inside a polygon area.

Review result before rasterizing {on/off} [R | Review]

If set to **off** all detected raster elements (dirt, holes) will be deleted/filled immediately.

If set to **on**, all detected raster elements (dirt, holes) will be displayed as follows:

Dirt = green

Holes = red

These elements can be reviewed. When elements shall not be deleted/filled they can be removed from the selection (see below **Window De-Selection**). With **[Return]** the remaining elements are removed (dirt) or filled (holes).

Several modes are available via command line input:

Window De-Selection

[w] starts the de-selection mode (default: active). Marked elements (green or red) can be de-selected by drawing a rectangle around one or more structures (window selection). These will be displayed in **magenta** color.

De-selected elements can be re-selected by pressing **[SHIFT]** and a repeated window selection.

Polygon De-Selection

[p] will switch into a polygon de-selection mode.

Add Dirt

With **[a]** single dirt elements can be added for deletion.

Presettings for color display of dirt and hole elements can be modified in the menu **Options – System Settings**.

Smooth Raster



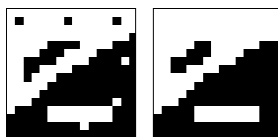
Toolbar: **Raster Operations (All)**

Menu: **Filter ▶ Smooth Raster**

CMD: **VPSMOOTH [NR] [NF] [L <Value>]**

The **Smooth Raster** function eliminates rough surfaces, isolated pixels, and fills small holes in raster data. The process requires several runs (max.: 16) detecting relevant elements or structures.

For color/gray scale images the **Active Image Settings** for the active color and background color will be used to remove/fill the pixels.



Original

Result

Options

No Cleanup [NR]

Pixels will not be deleted.

No Filling [NF]

Holes will not be filled.

Max. Number of Runs [L <Value>]

Maximum number of runs to delete pixels or raster holes.

All Raster Operations

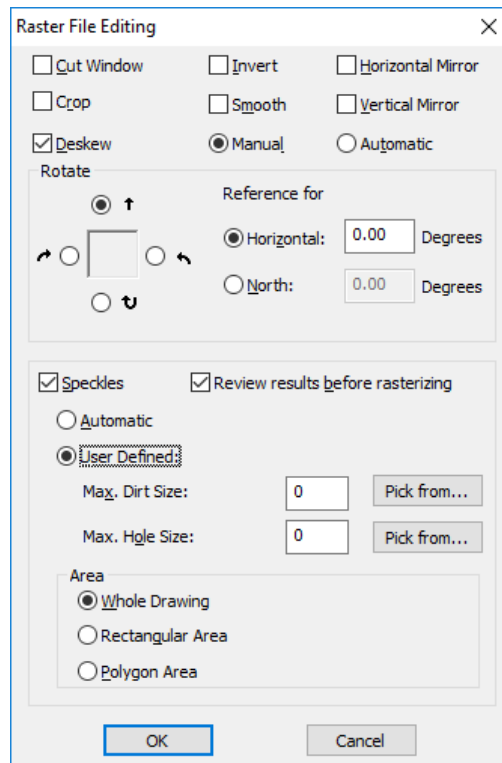


Toolbar: **Raster Operations**

Menu: **Raster ► Raster Operations ► All Raster Operations**

CMD: **VPRFE ► Dialog**

This function opens a dialog box where several frequently used raster file editing functions can be activated for sequential processing.



For details on the available raster file editing functions see the above descriptions.

Morphology



Toolbar: **Raster Operations (All)**

Menu: **Filter ► Morphology**

CMD: **VPMORPHO ► Dialog**

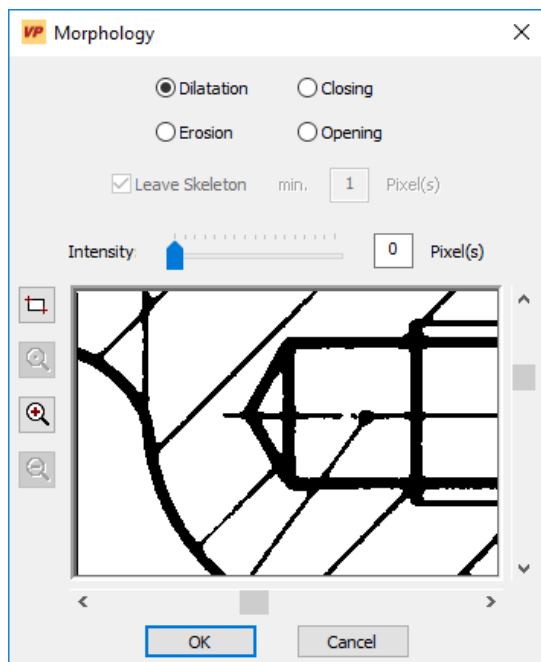
CMD: **VPMORPHO <D|Dilatation|E|Erosion|C|Closing|O|Opening> <Value1> <Value2>**

The **Morphology** function allows to improve a raster file by increasing/thickening (**Dilatation**) or decreasing/thinning (**Erosion**) the raster (mainly lines), or **Closing Area** or **Opening Area** (mainly raster areas).

For color/gray scale images the **Active Image Settings** for the active color and background color will be used to perform the operation.

Clicking this icon opens a dialog box displaying a small section of the raster according to the window box on the active raster image. You can click the cursor into an area of interest on the raster image which will then be displayed in the dialog box. Select an appropriate function and define the **Diameter** (in pixels). The result of the operation can be reviewed online. Use the **Pan** and **Zoom** functions for checking. Clicking with the cursor into another area of the raster file will show the operation results there.

Click **OK** to execute the operation on the whole raster file.



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Options

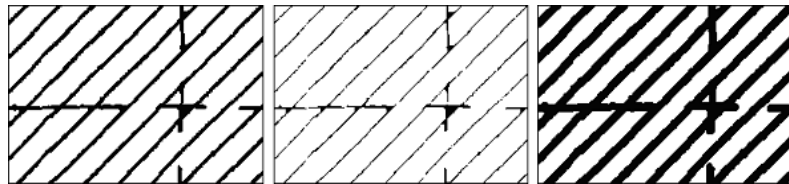
Dilatation (Thickening) [D|Dilatation]

The raster structures are enlarged around their contours by the number of pixels specified by **Diameter**. This way, thin raster line structures can be improved. Larger values bear the risk of line interconnections.

Default: **Dilatation**

Erosion (Thinning) [E|Erosion]

The raster structures are stripped down around their contours by the number of pixels specified by **Diameter**. This way, raster line structures can be thinned out. Larger values bear the risk of broken lines.



Original Raster Thinning (Diameter=1) Thickening (Diameter=2)

Closing Area [C|Closing]

This is a combination of **Thickening** and **Thinning** the raster structure with the same value of **Diameter**. It allows to closing narrow interruptions inside raster areas without changing the contour of the area, e.g. closing the interruption of a road or river crossing a forest area. This happens especially when exporting colors into a b/w raster file.



Original Image Closing Area (Diameter=9)

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Opening Area [O|Opening]

The opposite to **Closing Area**. Small interconnections, especially in raster areas will be removed without changing the contour of the area.



Original Image Opening Area (Diameter=12)

Leave Skeleton <Value2>

When **Erosion** and **Opening** is specified you can turn on this switch to avoid that entities (lines or points) are entirely removed. The specified value is the minimum thickness of a line or point in pixels.

Intensity <Value1>

This value defines (in pixels) the intensity of the above operations.

Default: 0 pixel

Cut to Drawing Format



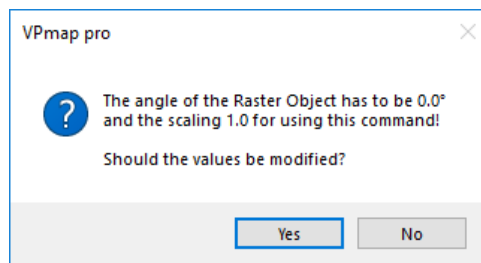
Toolbar: **Rubbersheeting**

Menu: **Raster ► Cut to Drawing Format**

CMD: **VPCUTTOPAPER ► Dialog**

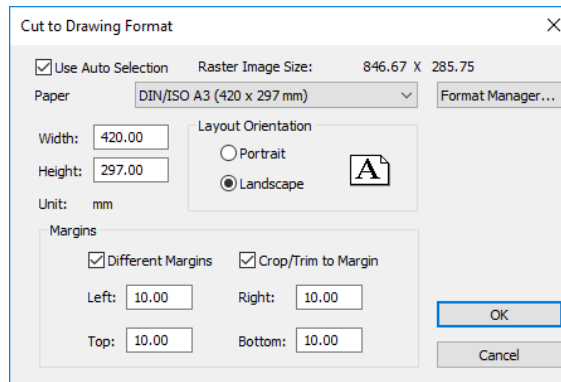
This function allows for cutting a raster file to fit to a selected format (size).

The cut to drawing format function can only be executed on an image which is not scaled or displayed with an angle (review and/or modify with the function **Properties**). Otherwise, the following message appears:



If you don't allow the software to modify those values the function will be cancelled.

A dialog box appears to select a drawing format or to define a new format with its settings.



After selecting **Paper Format**, **Layout Orientation**, and **Margins** click **OK** for execution. The cursor will then be replaced by a rectangle (or a double rectangle if margins have been specified) representing the new image boundaries. Place the (inner) rectangle at the desired position with a left mouse click. To rotate the rectangle by 90° press **[Ctrl]** or use the right mouse button while positioning the rectangle. A new raster image will be generated according to the outer rectangle boundaries. If **Crop/Trim to Margin** has been selected the area between the inner and outer rectangle will be erased (cropped).



The drawing should be deskewed and rotated to the desired orientation prior to starting this procedure.

Options

Use Auto Selection {on/off}

If set to **on** the **Paper Format** that matches the raster image best is selected. Otherwise, the last used format is selected.

Default: **on**

Paper Format

The majority of standard formats are available for selection. In addition, individual values for **Width** and **Height** can be entered.

Margins

The 4 margins determine the distances between the **drawing frame** and the physical **paper limits** (= paper size). For example, the length of the paper form (taken from edge to edge of the paper) minus both margins (**left** and **right**) defines the actual frame length of the drawing.

Different Margins {on/off}

If not selected only one margin serves for all 4 sides of the drawing.

Default: **off**

Crop/Trim to Margin {on/off}

This function erases all raster information within the specified margins (i.e. between the two rectangles).

Default: **off**

Format Manager

The **Format Manager** provides a customization of existing formats or new formats can be defined (see **Section 3**).

Scale



Toolbar: **Raster Operations (All)**

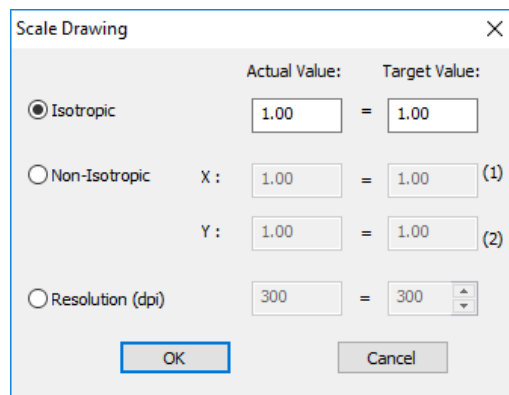
Menu: **Raster ► Scale**

CMD: **VPSCALE ► Dialog**

CMD: **VPSCALE <X-Scale> [Y-Scale]**

CMD: **VPSCALE DPI <DPI>**

Allows for scaling a raster drawing in **Isotropic**, **Non-Isotropic**, or **Resolution(dpi)** mode. A dialog box opens to select the scaling method and to enter the required values.



The dialog box titled "Scale Drawing" has a close button (X) in the top right corner. It contains three radio button options: "Isotropic" (selected), "Non-Isotropic", and "Resolution (dpi)".

	Actual Value:	=	Target Value:	
<input checked="" type="radio"/> Isotropic	1.00	=	1.00	
<input type="radio"/> Non-Isotropic	X : 1.00	=	1.00	(1)
	Y : 1.00	=	1.00	(2)
<input type="radio"/> Resolution (dpi)	300	=	300	

At the bottom, there are "OK" and "Cancel" buttons.

Isotropic Mode

The drawing will be scaled with equal values in x and y direction. Enter the **actual value** via keyboard or use **[F2]** to take it from the drawing; then, enter the adequate **target value**, or use the **[F2]** function again.

Default: **1:1**

Non-Isotropic Mode

This mode allows for different scaling values in x and y directions. The **actual reference values** can also be taken from the image using **[F2]**. The **target values** can be entered via keyboard, or by also using the **[F2]** function.

Default: **(x = y) = 1:1**

Resolution (dpi) Mode

Scale the drawing by specifying a new resolution for the raster image. The extents in base units (**mm** or **inch**) will remain constant. The **actual value** is grayed and displays the actual resolution of the raster image. Enter the desired resolution as **target value**.

Default: **400 dpi**

SECTION 6

RUBBER SHEETING, 4 POINT DRAWING CALIBRATION, SPLIT FILE, MERGE FILES

General Information

To complete the rubber sheeting of raster files efficiently, especially in cartographic and cadastral applications, the following parameter settings and functions should be considered:

- 1. Step:** Adjustment of the coordinate system according to the specific map.
- 2. Step:** Rubber sheeting set-up.
- 3. Step:** Entering of reference points, including correction values, where necessary.
- 4. Step:** Execution of the rubber sheeting with previously selected transformation function.

The user will be guided through all necessary steps automatically.

Rubber Sheeting Functions

You can choose one out of 9 **Polynomial** functions or the **Triangular (Exact) Transformation Function** supporting different rubber sheeting requirements. With the polynomial functions the setting **Automatic** (default setting) the software will select the highest possible function (up to Cubic) after entering the reference points. With each function, the minimum number of coordinate values (reference points) is indicated. For a successful calibration the input of more than the minimum number of reference point is recommended:

Function	Min. no. of ref. points	Original state	Result
Helmert	2	Rotated square	Orthogonal
Affine	3	Arbitrary parallelogram	
Linear	4	Arbitrary rectangle	
Projective	4	Arbitrary quadrangle	or
Quadratic	6	Arbitrary quadrangle incl. local distortion	aligned square
Cubic	10	Arbitrary quadrangle incl. increased local distortion	
Quartic	15	Cushion and local distortions	
Quintic	21	Cushion and local distortions	
Sextic	28	Cushion and local distortions	
Exact	3	Any distortion	

Reference points should be distributed evenly across the image. If this is not the case, local distortions can have a major impact on the entire raster file.

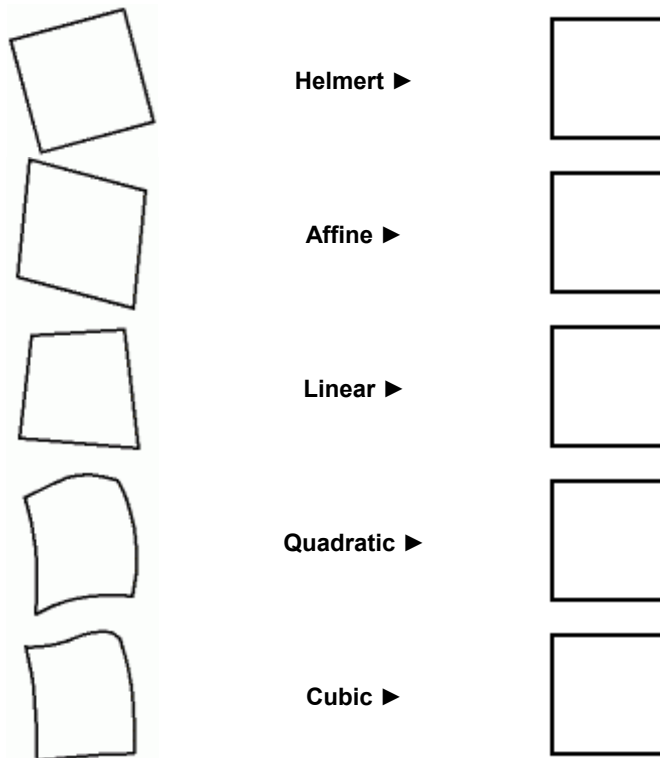
■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Higher functions (quadratic and cubic) should be performed with about twice the minimum number of points. When using a grid a minimum of 16 points (quadratic) or 25 points (cubic) is recommended. Also, there should be an even number in each of the x and y directions.

The **Triangular (Exact)** function corrects any (nonlinear) distortion in a raster file. It is especially useful if you need to correct particular points to exact positions. However, high deviations of the displacement direction within an area may lead to bent or cornered lines.

A warning message will appear in cases where the mathematical equation cannot be solved properly. Entering additional reference points or - if these do not exist - choosing a lower transformation function can solve the problem.

Imagine a square with different grades of distortion. Rubber sheeting functions can correct the following distortions:



Multi Point Rubber Sheeting



Toolbar: **Rubbersheeting**

Menu: **Raster ► Rubber Sheeting ► Multi Point Rubber Sheeting**

CMD: **VPRUBMULTI ► Dialog**

Starts the rubber sheeting function on the active raster image. Follow the system's advice to set up a proper environment for the rubber sheeting process.

Set Up User Coordinate System

The dialog box **User Coordinate System** appears allowing for setting up the user coordinate system for a particular raster image. This includes some specific values to define for the rubber sheeting process:

By entering values for

- **Coordinate System / Projection** (only VPmap Series)
- **User Unit**
- **Drawing Scale**

the coordinate system can be adjusted to the specific requirements of a rubber sheeting process.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Coordinate System / Projection (only VPHybridCAD)

This field always appears grayed and contains **Standard (Cartesian)**. However, when a file is opened containing Coordinate System information (e.g. GeoTIFF) a Coordinate System with a specific projection can be displayed. In this case **Parameter** becomes available to check on projection parameters. However, these cannot be changed.



To set up and edit a specific Coordinate System with projections you will need to apply softelec's **VPmap Series** products (VPmap, VPmap pro).

Coordinate System / Projection (only VPmap Series)

Select a **Standard (Cartesian)**, a **User Defined** projection, or one of about 2.000 predefined **Coordinate Reference Systems**. If **User Defined** or a predefined System is selected the **Parameter** button is enabled to view and/or edit the **Projection** parameters .

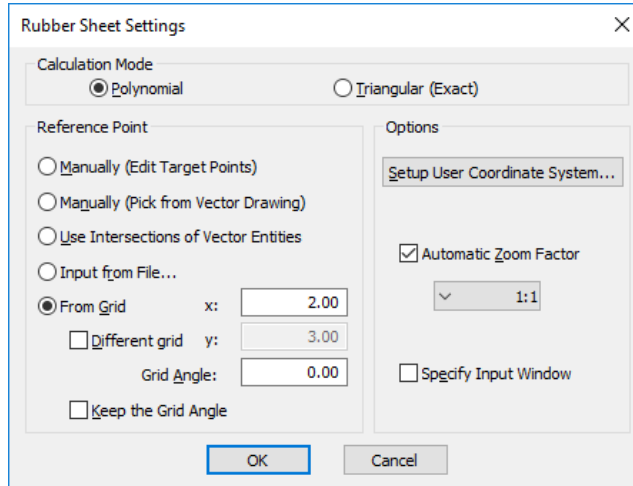
User Units / Drawing Scale

The **User Units** and the **Drawing Scale** should be set to a value which corresponds to the document data. This information may be either part of the legend or the drawing header in a raster image or it must be known due to other information sources. This allows for measurements (using function **[F2]**) in the document and for direct use of real coordinate values for the target points of rubber sheeting.

See **Section 4** for detailed information about VP software's coordinate system settings and options.

Rubber Sheet Settings

After having set up the **User Coordinate System** you need to define the rubber sheeting parameters:



Calculation Mode

Choose between the polynomial calculation functions and the triangular function.

Polynomial

The polynomial functions calculate the correction of the distortion at all reference points with an integral polynomial equation. The higher the polynomial function, the smaller the remaining distortions will become after rubber sheeting. However, there may be remaining distortions. The advantage of these functions is the lack of bends along straight lines. With setting **Automatic** the highest possible polynomial function will be selected automatically with reference to the number of entered input points.

Default: **Automatic**

Triangular (Exact)

This function splits the image into triangles between all reference points. It will reliably correct distortions at all reference points. Still, you need to consider that lines crossing different triangles may be bend at the limits of a triangle section. However, there will be no offsets.

Options

For any modifications on the **User Coordinate System** you can call this dialog again.

Automatic Zoom Factor

Whenever the function requires a picking of a reference point from the raster image and the frame box cursor appears, the system zooms in using this zoom factor.

Default: **1:1**

Specify Input Window

This option is only available if the **Input of Reference Points** is either set to **From File** or to **From Grid**. It allows to specify a window to limit the area of the raster file reference point input. Nevertheless, the rubber sheeting function is executed on the whole image.

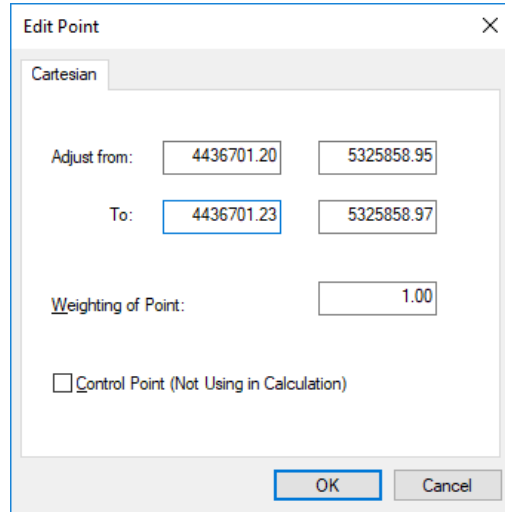
Target Reference Points

Here you can select the way of entering or marking (on screen) the **Target Reference Points** for later calibration. All **Actual Reference Points** are always taken from the raster image (see **Input of Reference Points**).

1. Manual (Edit Target Points)

This selection allows you to pick the reference points on your raster image and to enter the corresponding target positions via keyboard.

After clicking **OK** the main rubber sheeting dialog appears. You then need to click **Input Points** to start the process of entering the reference points. The cursor switches to a frame box allowing for zooming in with the next click. The standard cursor appears for clicking the actual reference point on the drawing/map. The edit point dialog opens for entering the target position of that reference point:



Weighting of Point

Allows for weighting the influence of a particular reference point with respect to other reference points on the polynomial equitation. With the triangular calibration method this value cannot be modified.

Default: 1

Control Point

If you check this parameter when editing a reference point this point will not be rubber sheeted. Instead, it is intended to serve as a control point. This parameter is always reset for the next editing.

On clicking **OK** the dialog is closed and the values appear in the main rubber sheeting dialog. Repeat this process until all reference points have been entered. Then click OK in the main rubber sheeting dialog to execute the rubber sheeting.

For further processing see **Rubber Sheeting Dialog**.

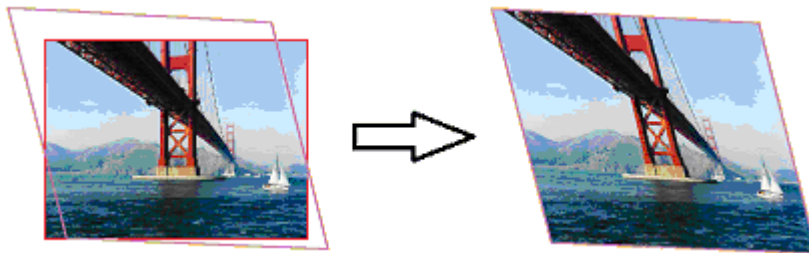
2. Manual (Pick from Vector Drawing)

Use this mode if you have a vector drawing to which you want to rubber sheet the raster image in a way that it fits with its reference points to corresponding points on the vector drawing. Import the vector drawing and ensure that the layer containing the vectors is switched on. Activate the vector snap and use appropriate snap modes.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

After clicking **OK** the main rubber sheeting dialog appears. Click **Input Points** to start the process of entering the reference points (i.e. the **Actual Position**) on your raster image. The cursor switches to a frame box allowing for zooming in with the next click on the area of the first reference point. The standard cursor re-appears for clicking the precise position. From that position a green line is stretched to the cursor. Then, click the corresponding point (i.e. the **Target Position**) on the vector drawing. Use the Pan and Zoom functions, if necessary; here, the vector snap supports precise positioning. The frame box cursor re-appears for clicking the area of the next reference point. The software zooms in again for clicking the precise position. Proceed in the same way until all reference points and target positions have been defined. The values are displayed in the main rubber sheeting dialog. The best suitable polynomial rubber sheeting function will be selected automatically. Execute the rubber sheeting with **OK** in the dialog.

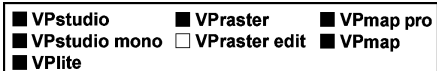
Sample



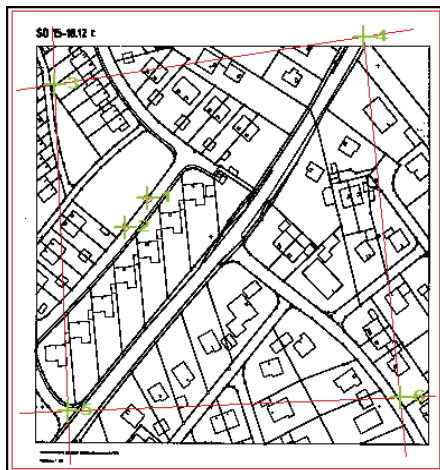
3. Use Intersections of Vector Entities

Use this mode to calibrate a drawing according to intersections between vector elements, such as lines and polylines, or to the center of (small) circles. You will be asked to select the vector elements. The system will calculate and display all intersections (numbered automatically) between the elements. For each intersection which serves as a **Target Point** you need to pick the respective actual position on the image. The system supports precise inputs by zooming in and out automatically (frame box cursor). All reference points will be listed in the main rubber sheeting dialog and the best fitting rubber sheeting function will be selected automatically.

Click **OK** for starting the rubber sheeting process. For entering the actual positions of the reference points see **Input of Reference Points**.



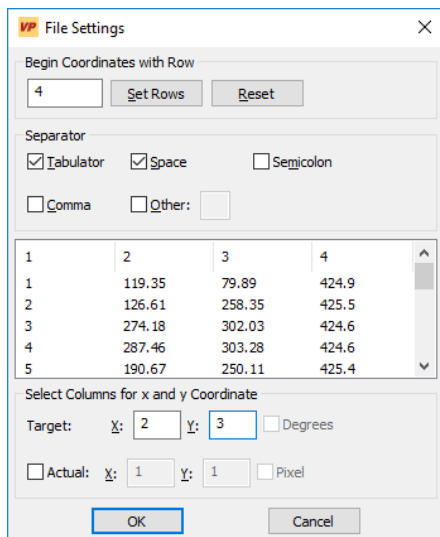
Sample of Intersection Point by Vector Elements



4. Input from File

For target reference points stored in a text file you can use this function to read the target coordinates. If the target reference points are not distributed all over the raster file you can limit the area of interest for entering the actual positions of the points by specifying a window (check **Specify Input Window** in **Options**). Nevertheless, the rubber sheeting process will be executed on the whole image.

Clicking **OK** in the dialog **Rubber Sheet Settings** allows you to specify and read the contents of a text file. A subsequent dialog contains specific settings.



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

After confirming the settings with **[OK]** a dialog displays the number of the required actual input points.

Begin Coordinates with Row

Coordinate files that have been generated by other applications may contain additional text information. If it is located at the beginning of the file you can skip this part by entering the line number where the import of coordinate values starts. You can get the line number from the displayed list. Then, all preceding data is removed from the list and the row number is set to 1.

Default: **1**

Separator

Select the characters that are used in the text file to separate consecutive coordinate values from each other. In the displayed list you may check the correct settings.



X and **Y** coordinates must be displayed in individual columns.

Select Columns for X and Y coordinate

Here you can enter the column numbers (see the display list's header) for the target values of **X** and **Y** coordinates. When a projection has been specified in the current coordinate system the option „**Degrees**“ will offer to define target values in geographical coordinates.

Actual

As for the target values, you can also enter the actual values of a distorted document. When activated the columns for **X** and **Y** coordinates need to be specified. The option **Pixel** will interpret all imported values as pixel coordinates (origin at upper left).

OK brings you to the main rubber sheeting dialog for entering the actual reference points.

5. From Grid

If the reference points are evenly distributed throughout the drawing on an even or irregular grid you can choose this procedure for a system supported input of the reference points. You need to specify the grid distance for the **X** (or **X** and **Y**) coordinate by entering the value or using **[F2]** function to measure the distance between two points on the raster image. Then, round the values so they comply to the original grid. For precise positioning of the grid with respect to the actual reference point do not forget to define the USC origin at the lower left reference point (see **Set Up User Coordinate System**).

Default X: **100**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Different Grid {on/off}

If the grid has a different spacing in X and Y direction switch on this option and enter the corresponding spacing values into the **X** and **Y** fields.

Default: **off**

Grid Angle

If the grid on the map is rotated enter the rotation angle in this field.

Default: **0°**

Keep the Grid Angle {on/off}

You can check this option on if you want to keep the grid angle of your map after rubber sheeting. Otherwise, the map will be rotated to an orthogonal orientation of the grid.

Default: **off**

This way a grid for all target points will be generated and automatically assigned to the actual points on the raster image. If the grid does not cover the entire raster file you can limit the area of interest by specifying a window (check **Specify Input Window** in **Options**). Nevertheless, the rubber sheeting process will be executed on the whole image.

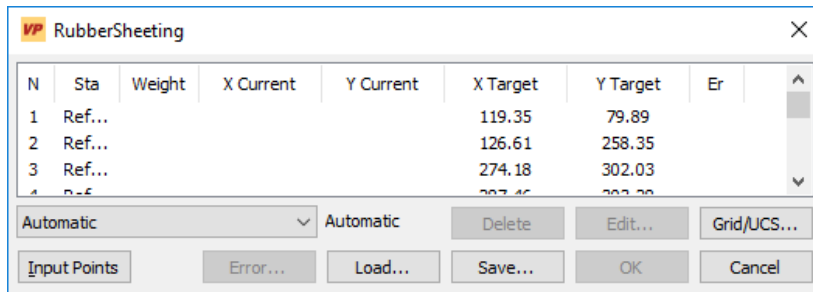
Clicking **OK** shows the specified grid on the map or asks for dragging a window for a limitation of the area. Then, the main rubber sheeting dialog appears.

Input of Reference Points

After completing the **Rubber Sheet Settings**, the main rubber sheeting dialog box appears prompting for the entry of **reference points** and the choice of a **rubber sheeting function**.

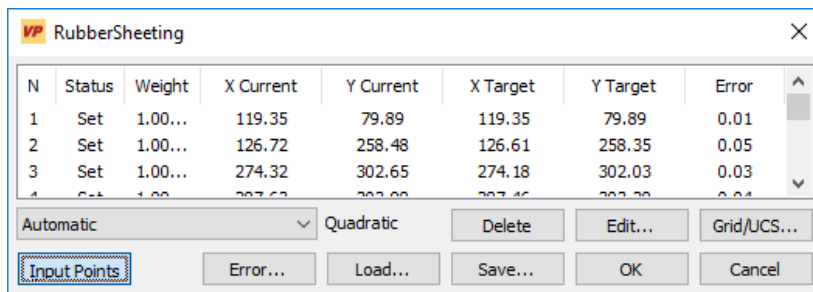
Input Points {on/off}

If you have selected the modes 3 or 4 (**User Intersections of Vector Entities** or **Input from File**) in the **Rubber Sheet Settings** you will find all target reference points listed in the dialog. With all other modes the listing in the dialog will be empty at this stage.



The button **Input Points** for picking the actual reference points from the raster image/map can be clicked to start the process.

With modes 3, 4, or 5 the system zooms in according to the selected zoom factor to the first point (a green line is stretched from the target point to the cursor), so you can pick the actual position from the raster image. The system then jumps to the area of the second reference point and so on. After all required reference points have been picked the system zooms out and displays in the dialog actual and target position of each point.



With mode 1 and 2 the actual and the target reference points need to be entered/edited as explained above. If the **Automatic Zoom Factor** in the **Rubber Sheet Settings** is **on** the **cursor** switches to the zoom frame box at each initial positioning click.

For picking the actual points you can switch on the raster snap, although this is only recommended if the reference points on the raster are very clear and crisp.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

As soon as the minimum number of reference points is entered (according to the selected rubber sheeting function), the remaining offset (**Error**) from the target position for each reference point **after** the rubber sheeting process will be calculated and displayed. If the calculation mode **Polynomial** has been selected the system will automatically select a higher transformation function with increasing number of reference points and will calculate the errors accordingly.

If the cursor jumps to an area with a missing or unclear reference point (sometimes you may even look at an "empty" screen), you should first zoom out for control using the (-) zoom icon. If there is no actual reference point or you have moved beyond the map's extents skip this point by using the right mouse button.

At each reference position **cross marks** and **vectors** indicate the following:

- **Label No. of the Reference Point**
- **Red cross** = **actual value**
- **Green cross** = **target value**
- **Yellow cross** = **attainable correction**
- **Distance green/yellow** = **remaining offset from the target value**

After all reference points have been entered switch off the button **Input Points**.

Rubber Sheeting Function

With the **Polynomial Calculation Mode** you can select the desired rubber sheeting function or **Automatic**. With Automatic the program suggests a suitable function automatically and will calculate correction values concurrently while in the input mode. In proportion to the number of entered reference points the system will suggest a higher transformation function, i.e. providing the highest attainable rubber sheeting precision. A lower transformation function can always be chosen.



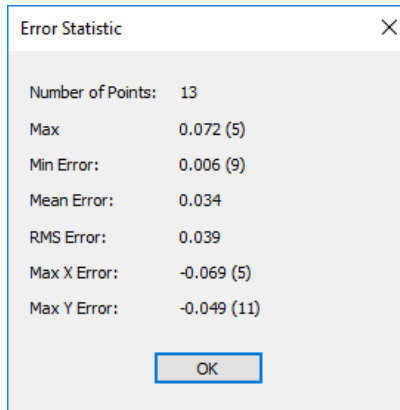
If the mathematical equation cannot be solved properly, a warning message will appear. In this case more reference points ought to be entered or a lower function should be selected.

Button Functions

Save allows saving of reference values and settings to a file (extension **.RYP**) preferably in the raster file's directory. You also can export a text file (select the extension **.TXT**) containing all information of the current rubber sheeting setup for documentation (e.g. reference point coordinates).

Load will load a **.RYP** file to continue with rubber sheeting operations.

Error Statistics opens an info box showing error statistics:



Delete Point deletes the current reference point.

Edit Point opens another dialog box to edit a reference point. The **actual** value can be taken directly from the raster drawing by using **[F2]**.

Grid/UCS brings you back to the **Rubber Sheet Settings** dialog (see before).

Cancel will terminate rubber sheeting operations at any time.

OK starts the rubber sheeting. The progress indicator appears. After completion the **corrected file** will be displayed containing **yellow** and **green** cross signs to review the accuracy of rubber sheeting. Termination with **OK**. The new file should be saved.

4 Point Drawing Calibration

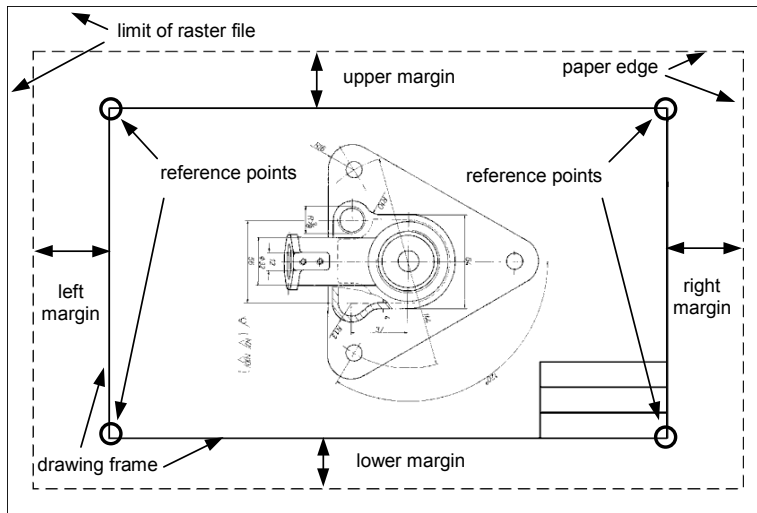


Toolbar: **Rubbersheeting**

Menu: **Raster ► Rubber Sheeting ► Calibrate to Drawing Format**

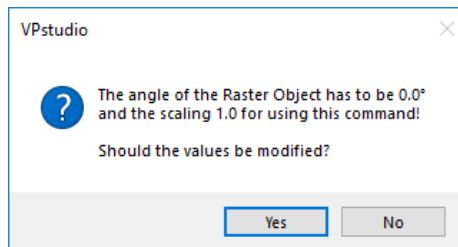
CMD: **VPRUB4POINT**

This function is especially designed for rubber sheeting of technical drawings based on a drawing's paper format. Usually, technical drawings are created on transparencies with a drawing frame bearing an orientation to the paper format. This drawing frame will be used as a scale reference for the necessary rubber sheeting process. It is also assumed that the drawing's contents will remain in the desired scale after the rubber sheeting process.



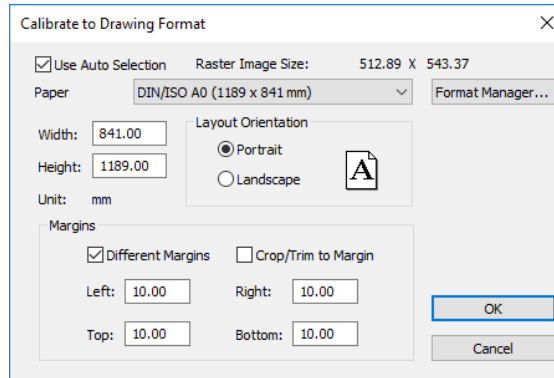
Preparation

The 4 point drawing calibration function can only be executed on an image which is not scaled or displayed with an angle (review and/or modify with the function **Properties**). Otherwise, the following message appears:



If you don't allow the software to modify those values the function will be cancelled.

When invoking the command or clicking the above icon a dialog box appears to select a drawing format or to define a new format with its settings:



This function allows for rubber sheeting a raster file to fit to a selected format (size).

Options

Use Auto Selection {on/off}

If set to **on** the **Paper Format** that matches the raster image best is selected. Otherwise, the last used format is selected.

Default: **on**

Paper Format

The majority of standard formats are available for selection. In addition, individual values for **Width** and **Height** may be entered.

Margins

The 4 margins determine the distances between the **drawing frame** and the physical **paper limits** (= paper size). For example, the length of the paper form (taken from edge to edge of the paper) minus both margins (**left** and **right**) defines the effective drawing frame's length.

While each paper format can bear different values for margin distances, **Save as Default** saves the actual margins for permanent use with the selected form size.

Different Margins {on/off}

If set to **off**, only one margin serves for all 4 sides of the drawing.

Default: **off**

Crop/Trim to Margin {on/off}

This function erases all raster information within the specified margins (i.e. between the two rectangles).

Default: **off**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Format Manager

The **Format Manager** provides a customization of existing formats or new formats can be defined (see **Section 3**).

Calibration

After selection of the **Paper Format** and **Margins** and clicking **OK** a rectangle representing the selected paper form is placed on your drawing. If there are margins specified a double rectangle will be displayed instead. The cursor appears with a frame box linked to the upper left corner of the (inner) rectangle of the drawing format. Click the upper left corner of the raster image for zooming into this area and then place the appearing standard cursor precise on the frame corner of your raster drawing. The system jumps to the next corner (upper right) and the frame box is now linked to the corresponding corner of the (inner) rectangle. Proceed as before. After having clicked all 4 corners the rubber sheeting process is executed and the final raster image appears on screen for saving.



The drawing should be deskewed and rotated to the desired orientation prior to starting this procedure.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPLite		

Split a File (only VPmap Series)



Toolbar: **Split+Merge**

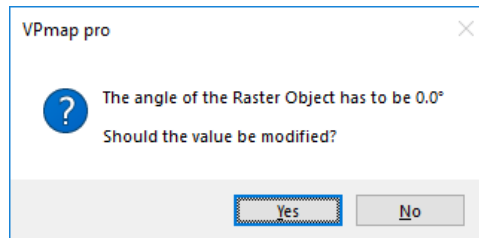
Menu: **Raster ► Raster Operations ► Split**

CMD: **VPSPLIT ► Dialog**

CMD: **VPSPLIT <X-Size/Number> <Y-Size/Number> [/M <Value>] [/R <Value>] [/E] [/T] [/OX <Value>] [/OY <Value>] [/N <File Name>]**

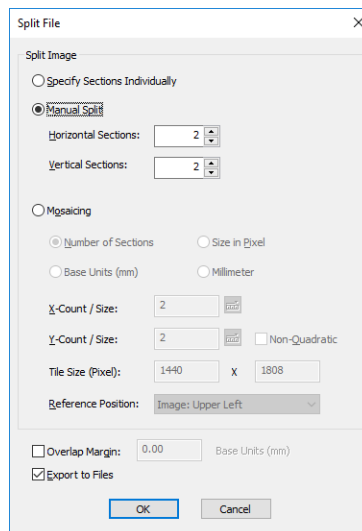
You can manually split a raster file into a maximum of 625 sections by positioning up to 24 horizontal and 24 vertical split lines on the drawing or automatically by specifying a tile size (or count) in order to generate equal-sized tiles (mosaics). The tiles can be saved into separate files or will replace the current raster in the document.

The split function can only be executed on an image, which is not displayed with an angle (review and/or modify with the function **Properties**). Otherwise, the following message appears:



If you don't allow the software to modify this value the split function will be cancelled.

When executing this command on the active raster file a dialog box opens to define the number or size of horizontal and vertical sections. In manual mode a maximum of 25 sections in each direction may be selected:



<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Specify Sections Individually

On **OK** you can position the split lines on the image.

The status line calls for a positioning of the **first horizontal split line**. Follow these steps to position all horizontal, and then all vertical split lines:

- Click where the first line should be positioned. **Zoom** and **Pan** commands are available.
- The split line appears in **green**.
- Clicking the **right** mouse button opens the context menu. You can delete the last split line with **Undo** and re-position it again.
- Continue until all horizontal split lines have been set. Select **Add Vertical Split Line(s)** from the context menu and set the desired vertical split lines.
- After positioning the last line select **Finish Input** from the context menu to start processing.

The new raster images which are going to be created will be named according to the original image and their position in correspondence to the original file:

First digit: Horizontal position (row, top to bottom)

Second digit: Vertical position (column, left to right)

The origin (0-0) resides at the upper left.

Manual Split [M M]

Select the number of **Horizontal Sections** (Y-Direction) and **Vertical Sections** (X-Direction). On **OK** you will be asked to position the split lines on the image.

The status line calls for positioning of the **first horizontal split line**. Follow these steps for positioning all horizontal, and then vertical split lines:

- Click where the first line should be positioned. **Zoom** and **Pan** commands are transparent.
- The split line appears in **green**.
- Clicking the **right** mouse button opens the context menu. You can delete the last split line with **Undo** and re-position it again.
- Continue until all horizontal and vertical lines have been selected. After positioning the last line the process starts.

The new raster images which are going to be created will be named according to the original image and their position in correspondence to the original file:

First digit: Horizontal position (row, top to bottom)

Second digit: Vertical position (column, left to right)

The origin (0-0) resides at the upper left.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Mosaicing

With this mode all tiles will have an equal size, which means the image might be extended in all directions when creating the tiles. Four different modes are available to define the size of the tiles:

Number of Sections	/M C	Define the number of tiles in X- and Y-direction.
Size in Pixel	/M P	Specify the absolute size of each tile in pixels
Base Units	/M B	Specify the size of each tile in the currently used Base Units (mm or inch)
UCS Units	/M U	Specify the size of each tile in the units of the current User Coordinate System (e.g. m)

The lower part of the dialog will show the currently defined absolute size of each tile in pixels as a reference.

The option **Number of Sections** creates quadratic tiles by default. By setting **Non-Quadratic to on** you can specify the tile height independently from the tile width.

Further, you may specify a **Reference Position** where the splitting should start. Valid options are:

UCS Grid Position	/R U	Only effective with the options Base Units or UCS Units!
Image: Upper Left	/R UL	Upper left corner of image
Image: Lower Left	/R LL	Lower left corner of image
Image: Upper Right	/R UR	Upper right corner of image
Image: Lower Right	/R LR	Lower right corner of image
Image is Centered	/R C	Image is centered on the tiles

Overlap Margin {on/off} [/O]

This option allows to increase the tile size by a specified margin in order to create overlapping tiles. A margin value can be entered in the adjoining edit field.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Export to Files {on/off} [/E /N <File Name> /T /OX<XN> /OY <YN>

This option allows to export each created tile into a separate file (set **on**).

In the dialog mode you are requested to enter the **base file name** for all split files. In the command line mode the filename of the image is automatically used as the **base file name**. Two digits in parenthesis will be appended as (0-0), (0-1), etc. The first digit indicates the row (top to bottom), the second digit the column (left to right).

/N <Name> Base (and path) for tiles. Tile numbers will be added in format (X-Y).

/T Coordinate values of the lower left corner and of the upper right corner in the original file will be written to a text file in user units.

/OX <XN> Numbering of tiles in X direction will start at XN , not at 0.

/OY <YN> Numbering of tiles in Y direction will start at YN , not at 0.

Default Settings

If only **<Vertical Size/Count> <Horizontal Size/Count>** are specified on the command line, the command will be executed with the options **/M M** which means **Manual Split**.

The default value for the **/R** option is **/R UL** which means that the upper left corner of the image will be identical to the upper left corner of the first tile.

Split a File (only VPHybridCAD)



Toolbar: **Split+Merge**

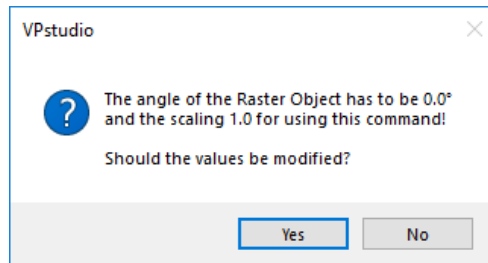
Menu: **Raster ► Raster Operations ► Split**

CMD: **VPSPLIT ► Dialog**

CMD: **VPSPLIT <X-Count> <Y-Count> [/E]**

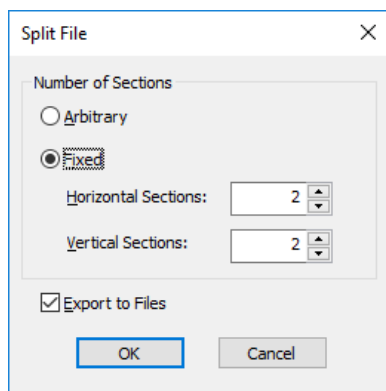
You can manually split a raster file into a maximum of 625 sections by positioning up to 24 horizontal and 24 vertical split lines on the drawing or automatically by specifying a tile size (or count) in order to generate equal-sized tiles (mosaics). The tiles can be saved into separate files or will replace the current raster in the document.

The split function can only be executed on an image, which is not displayed with an angle (review and/or modify with the function **Properties**). Otherwise, the following message appears:



If you don't allow the software to modify this value the split function will be cancelled.

Normally, a dialog opens to define the number of tiles in the raster image:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Arbitrary

On **OK** you can position the split lines on the image.

The status line calls for a positioning of the **first horizontal split line**. Follow these steps to position all horizontal, and then all vertical split lines:

- Click where the first line should be positioned. **Zoom** and **Pan** commands are available.
- The split line appears in **green**.
- Clicking the **right** mouse button opens the context menu. You can delete the last split line with **Undo** and re-position it again.
- Continue until all horizontal split lines have been set. Select **Add Vertical Split Line(s)** from the context menu and set the desired vertical split lines.
- After positioning the last line select **Finish Input** from the context menu to start processing.

The new raster images which are going to be created will be named according to the original image and their position in correspondence to the original file:

First digit: Horizontal position (row, top to bottom)
Second digit: Vertical position (column, left to right)

The origin (0-0) resides at the upper left.

Fixed <X-Count> <Y_Count>

Select the number of **Vertical Sections** (X-Direction) and **Horizontal Sections** (Y-Direction). On **OK** you will be asked to position the split lines on the image.

The status line calls for positioning of the **first horizontal split line**. Follow these steps for positioning all horizontal, and then vertical split lines:

- Click where the first line should be positioned. **Zoom** and **Pan** commands are transparent.
- The split line appears in **green**.
- Clicking the **right** mouse button opens the context menu. You can delete the last split line with **Undo** and re-position it again.
- Continue until all horizontal and vertical lines have been selected. After positioning the last line the process starts.

The new raster images which are going to be created will be named according to the original image and their position in correspondence to the original file:

First digit: Horizontal position (row, top to bottom)
Second digit: Vertical position (column, left to right)

The origin (0-0) resides at the upper left.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Export to Files {on/off} [E]

This option allows to export each created tile into a separate file (set **on**).

In the dialog mode you are requested to enter the **base file name** for all split files. In the command line mode the filename of the image is automatically used as the **base file name**. Two digits in parenthesis will be appended as (0-0), (0-1), etc. The first digit indicates the row (top to bottom), the second digit the column (left to right).

Merge Raster Files



Toolbar: **Split+Merge**

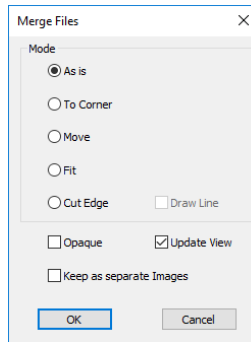
Menu: **Raster ► Raster Operations ► Merge**

CMD: **VPMERGE ► Dialog**

Two raster images can be merged into one image. The **active raster** image is **always** the base image to which a second image will be positioned, scaled, and merged. If you select another raster image (if available) prior starting the command, then this image will be merged to the **active raster**.

If no other image (already imported into the document) has been selected, the system opens the import dialog and requests to load a raster file as second image for merging.

Thereafter, a dialog box appears to select the appropriate merging method:



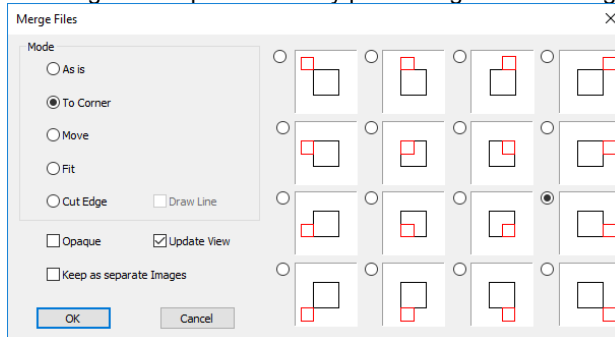
Options

As is

Merges the two images as they are displayed on screen.

Specific Corner

Enlarges the dialog and offers to select the position of the second image with respect to the active image. This function is designed for quick and easy positioning of raster images with no margins:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Move

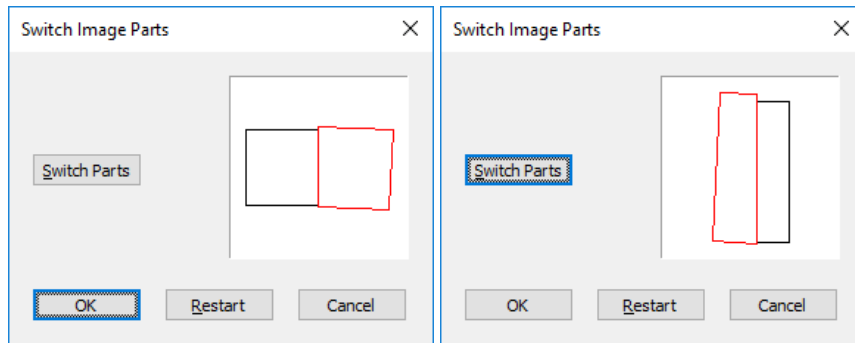
Allows the raster object to be moved with respect to the **active raster** image without scaling and/or rotation according to **one moving vector**. You are requested to draw a line (the move vector) defining the move distance and angle. Then both files are merged.

Fit

Calls for **two moving vectors**. This way, the raster object can be scaled, moved, and/or rotated according to the two vectors with respect to the **active raster** image. Then both images are merged.

Cut Edge

This function is similar to **Fit**, as it also uses two moving vectors for fitting the second image to the active image. However, this function cuts both images along a line through the 2 target points of the drawn vectors. With the following dialog you can switch between 2 remaining images:



Draw Line {on/off}

Allows for drawing a user defined line for cutting both images instead of the line through the target points.

Update View {on/off}

Updates the display after entering each of the moving vectors to show the actual position of the 2 images.

Opaque (B/W images only) {on/off}

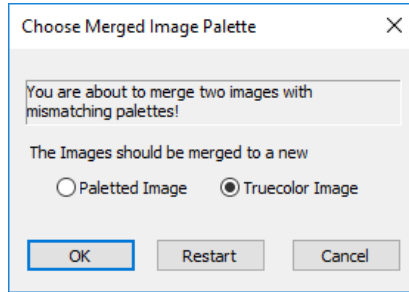
If checked **on** b/w raster images are treated opaque, i.e. the section of the active image underneath the moved raster image is not visible.

Keep as separate Images {on/off}

If checked **on** the two images will not be merged into one new image, but stay as two separate images adjusted to each other.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Any two image formats can be merged. When merging different color, gray scale, and b/w raster images, a dialog may open to select the target color depth:



If you merge two paletted images based on different palettes, you can choose either to calculate a new palette or to create a true color image (recommended).

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

SECTION 7

COLOR REDUCTION, SEPARATION, FILTERS

General

When color or gray scale originals are scanned with applicable scanner devices, you will generate very large raster files containing millions of colors. To process these files in CAD programs, it is important to optimize the color and gray scale information. This can be done either by reducing minor colors, combining colors, or by leveling color transitions to reduce the information for each of the remaining colors, thus render a proper interpretation possible.

To accomplish this, VP software's built-in scanner interface allows you, besides executing full color (24 bit) scans, to limit the number of colors to be captured to 256 colors or less by using a color conversion table (image palette). This table is based on either a standard color palette or on an adaptive palette created during a prescan. Thus, an indexed color image will be generated.

An indexed image contains 256 or less colors/gray scales. Each index represents a specific color by its portions of the three basic colors red, green, and blue (each basic color having a value from 0 to 255) that have been assigned during the scan process to a palette. Hence, a palette is a table where each of the image's colors (256 or less) is assigned proportions of the basic red, green, and blue color (i.e. RGB).

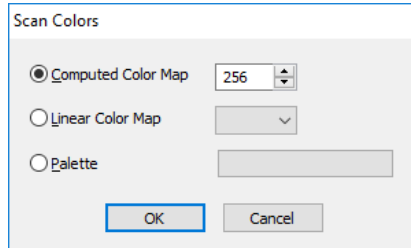
Using the color reduction process, the original total number of colors can be reduced to create solid colors. Thus, the original file size may be reduced dramatically, while the image's representation may improve at the same time. The overall goal is to reduce the number of colors or gray scale tones and to condense the contained information on base colors.

The color separation process allows only for reducing colors but also for creating (and, if necessary for exporting) bi-level (b/w) raster images from remaining or individually selected colors. These images can be processed just like any other "regular" b/w file.

For further processing color images can be treated as bi-level images. In this case the active (foreground) pixels are composed from a color or gray scale pattern. (Function: **Image Settings**, see **Section 4**).

Scanning Colors

After inserting an original document and setting up the scanner (see your scanner manual and/or **Section 3**), the assignment of a palette can be activated. Also, an existing palette can be selected if you don't want to scan in full color. A dialog box appears to define the palette (**color map**) for the color reduction to a maximum number of 256 colors:



When choosing **Linear Color Map** a conversion will be executed according to the standard color palette.

When choosing **Computed Color Map** a prescan will follow to detect the existing colors in the actual original. From these colors an individual color palette will be generated.

In the **selection box** the desired maximum number of colors can be specified.

The dialog box closes on **OK** followed by the prescan and the calculation of the color palette. Then, the selected scan function will be executed.

After every **Stop** action in the scan menu or when reaching the end of the document, the current calculated palette will no longer be valid. When repeating the scan action, a new palette will be calculated and assigned. If you switch from **Forward** to **Scan** directly, though, the same palette will be used.

Color (Gray Scale) Reduction



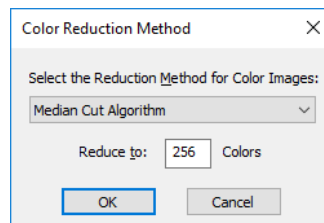
Toolbar: **Color Tools**

Menu: **Raster ► Color ► Color Reduction**

CMD: **VPREDUCE ► Dialog**

CMD: **VPREDUCE [RM|RedMethod <VALUE>] [C|Color <Value>] [P|Palette <Filename>]**

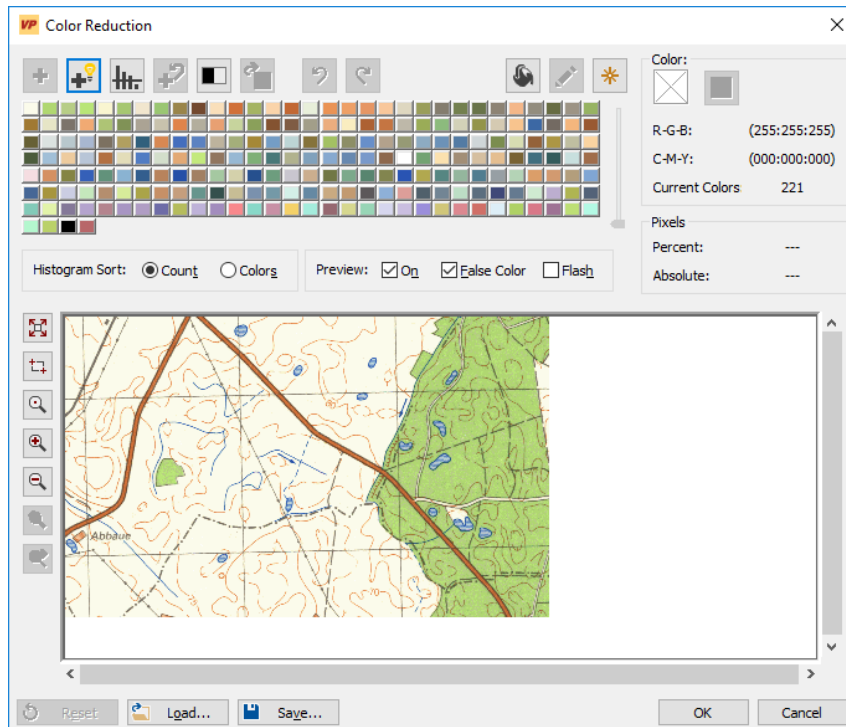
If the active raster file is a full color image (RGB) or contains more than 256 colors/gray scales a dialog box appears for selecting an automatic color reduction method and the number of colors after this first step:



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Default: **Color Reduction Method:** **Median Cut**
Reduce to Colors: **256**

The active raster image will be converted to a indexed file with the selected amount of colors. Then, the dialog box for color manipulation appears, displaying all existing colors in the raster image:



The dialog boxes contain two main areas: the lower **Preview Area** displays the image as it will look after any step of color manipulation/reduction, while the upper **Histogram Area** presents the colors currently contained in the image.



In the preview area the default cursor is a pipette which allows colors to be selected from the raster image by clicking with the left mouse button on anyone pixel. To select the color of an area click and drag the mouse for a window selection of all colors enclosed. Use **Pan** and **Zoom** functions for a precise selection.



To deselect colors from within the Preview hold the **[Shift]** key while re-selecting as described above. Colors can also be deselected by clicking again on a selected color in the histogram area. The first selected color will flash in the histogram area. It serves as the **Target Color** for the subsequent operation(s).

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Preview Area

Preview Modes

Any color or color pattern selected in the histogram or preview area will be displayed in the preview area corresponding with the selected preview modes: **On**, **False Color**, and **Flash**.

On: Activates the display of selected and/or modified colors in the preview. Selected colors are displayed in the preview with their **Target Color**.

False Color: For better distinction check false color. It shows the selected colors not in the target but in its complementary color.

Flash: Toggles the view of the selected colors on and off automatically.

Pan and Zoom

To move around the Preview you can use the scrollbars. There are several zoom commands available:



Zoom Extents shows the entire image in the preview window. This is the initial state when the dialog opens.



Zoom Window switches the cursor in the preview into a crosshair for selecting an image area to zoom in. Then, the cursor switches back to a pipette.



Zoom 1:1 switches the cursor to a magnifier glass in the Preview. Click the desired center of the view with the left mouse button for zooming in. Then, the cursor switches back to a pipette.



Zoom In.



Zoom Out.



Zoom Previous shows the previous view of the image.



Zoom Next shows the view before the **Zoom Previous** state.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Processing Buttons

OK: Executes all color reduction operations on the active raster image and leaves the dialog. Use the function **Undo** if you want to return to the status prior to starting **Color Reduction**.

Cancel: **Closes** the dialog box without changes in the original image.

Reset: Rejects all modifications of the color reduction process. It restores the original palette.

Load: Opens the load dialog for loading a color reduction palette (Raster Palette, **.RPL**). Included in this file are the image's original and reduced palettes. You can only load a color reduced palette if the original palette and the saved reduced palette match. In case you want to apply a certain color reduced palette to several scanned images make sure that these images have been scanned to the same palette.

Save: Opens the dialog for saving a color reduction palette (Raster Palette, **.RPL**). You can load the palette with **Load** in this dialog or in the **Scan** dialog.

Histogram Area

In this area the image colors are represented either as **Columns** (if 50 or less colors remain) or as a **Button Array**, with one button for each color. The buttons can be clicked for selecting colors (if not picked from the image). In pressed status they indicate which colors have been selected. Clicking the right mouse button on the color button array and dragging a window, while keeping the mouse button pressed selects all included buttons.

The first selected color flashes in the histogram area. It serves as the target color for reduction. Deselecting this color by clicking the color button again will cancel the selection of colors.

The column height in the histogram indicates the frequency rate of colors in the image. There is also an action button below each column. Clicking the action button adds or removes this color to or from the list of selected colors.

When the Histogram is displayed a slider on the right can be moved up and down to scale the frequency bars of the histogram. This option is intended for a better view of minor frequency rates.

The context menu (right mouse click) offers some of the major functions: **Combine Colors**, **Export Color(s) to Raster File(s)**, **De-select All**.

Color Sort Options

There are two **Histogram Sort Options** available:

Count Sort

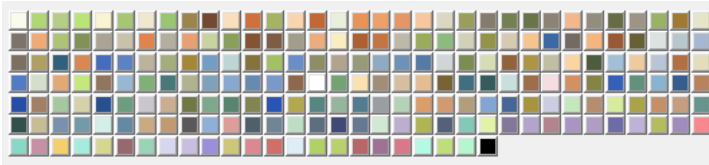
Shows all colors in the order of their frequency rate in the image. The most frequently contained color is displayed in the upper left position of the button array and as the first left column respectively.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

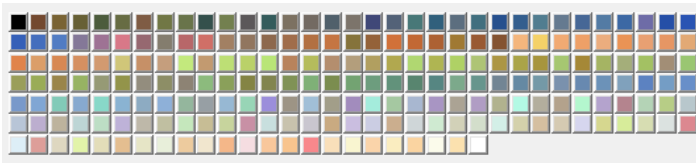
Color Sort

Shows all colors sorted according their relative color distance. The darkest color is displayed in the upper left position of the button array and as the first left column respectively.

Count Sort:



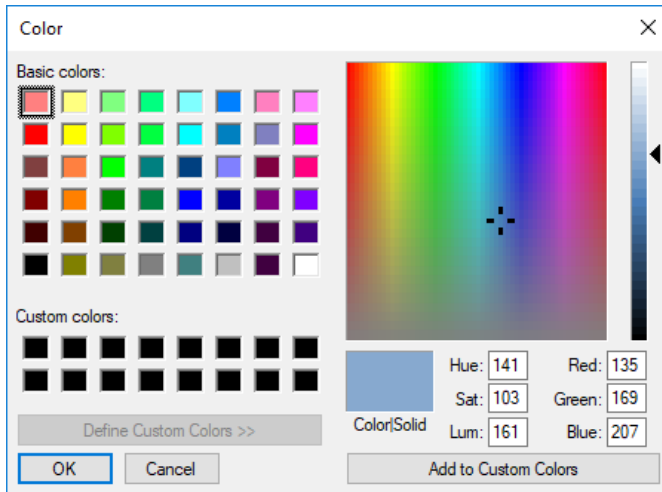
Color Sort:



Modify a Color

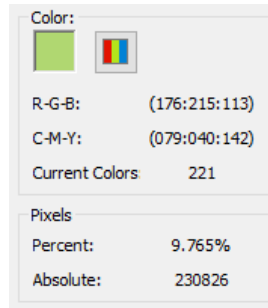


If you want to change a color, select this color in the color button array (or in the column histogram) or pick from the image and then click on this icon. The standard Windows color dialog opens for selecting a new color:



Color and Pixels Area:

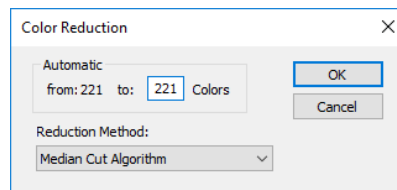
When clicking on a color button or the respective color bar the color's frequency rate in the entire image is displayed in the **Color and Pixels Area**:



Automatic Color Reduction



Clicking this icon in the color reduction dialog starts the automatic color reduction. A dialog box opens displaying the actual number of colors used and asks for entering the desired number of colors after reduction (minimum number = 10) and offers the selection of a reduction method:



Default: Median Cut

With **OK** the image will be updated and displayed in the preview dialog window with the reduced color palette.

Interactive Color Reduction



Clicking this icon in the color reduction dialog executes the color reduction of all selected colors to the **Target Color**. The number of remaining colors is reduced accordingly. If less than 51 colors remain the color display in the histogram area changes to a column representation.

The **Target Color** receives a double frame in the button array for a better distinction between a target color and those to be combined.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

There are different ways to select colors for reduction: you can click on the respective button in the histogram area or on an image pixel in the preview area. In the latter case, the cursor appears as a pipette. Multiple colors can be selected in the histogram area while keeping the right mouse button pressed and dragging a window, and in the preview area by dragging a window while keeping the left mouse button pressed. The selected colors are indicated by an inverse (pressed) button state in the histogram area. The color selected first will be the **Target Color**, thus receiving a highlighted frame and a flashing display.

To deselect a color click on the corresponding color button or click on a pixel of the respective color in the Preview while pressing **[Shift]**. If the target color is deselected, all other selected colors will also be deselected.

Split (Explode) Color

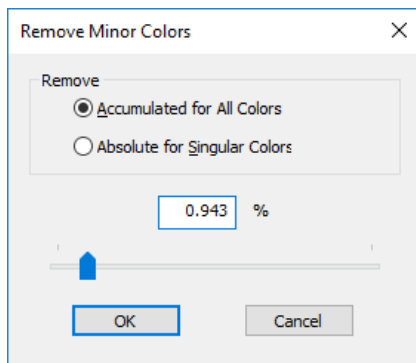


If you select a color which other colors have been combined to previously (by automatic or interactive color reduction) you can click this icon to explode the color back into its components.

Reduce only Minor Colors



Clicking this icon allows for a selective automatic color reduction of minor colors in the image to their adjacent major colors. A dialog box opens:



Moving the slider or entering a value (max. 10%) will select all minor colors (from the end of the color histogram in count mode) controlled by the percentage with respect to the whole image and according to the remove mode. This process provides a quick reduction of all minor colors in an image which usually do not represent any valuable information.

Accumulated for All Colors

The displayed value is the total percentage of all selected minor colors.

Absolute for Singular Colors

Those colors are selected each of which has a share of the displayed percentage or less in relation to the whole image.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Convert Image to B/W



Click this icon to convert the image into a b/w raster file. The colors of the image will be converted to b/w according to the standard b/w conversion palette.

Undo, Redo

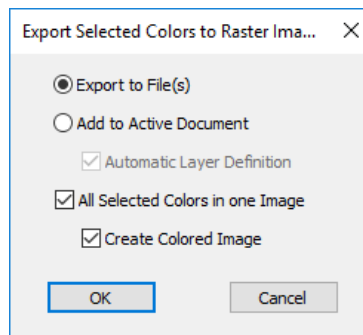


Undo and **Redo** will undo or redo the individual reduction steps. This way you can test the effects of reduction on a varying number of colors. The number of undo steps is limited to 32.

Export Selected Colors



Click this icon to export the currently selected color(s). A dialog box opens for defining the export process:



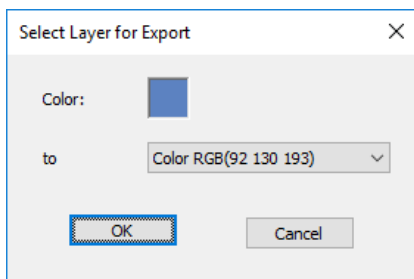
Export to File(s)

Generates an individual b/w raster file for each selected color. After entering a file name all files will receive a suffix: "**_sepNN**" (NN starts counting from 01) and saved in **TIFF** format. The colors will be numbered from left to right and from top to bottom according to the selected colors in the histogram area.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Add to Active Document

Creates new layers to the active image each of which contains the b/w raster of one of the selected colors. If **Automatic Layer Definition** is checked the system assigns the RGB values as names for each layer. Otherwise the following dialog opens allowing the selection of any available layer or creating new layers for each exported color:



All Selected Colors in one Image

Creates a new raster image containing all selected colors. A b/w image will be created by default. With the following option you can create a colored image:

Create Colored Image

Creates a colored image containing the currently defined background color and all selected colors.

Color Filling



Click this icon to fill areas. In the preview area the cursor changes to a fill cursor. It allows to fill a color pattern area in the image with one solid color by clicking into the area. The fill function calculates a mean color value of the pattern and fills the area with the closest palette color. If you have selected a color prior to activating this function, this color is used for filling.



The **Color Filling** function stays active until it is switched off again. The filling **Color** can only be modified (selected) when the **Color Filling** function is switched off.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Single Pixel Pen



Select the active color (either click on a color button of your choice, define a new color being active, or select the active color with the pipette from the image). Then click this icon to change a single pixel to the active color by a left mouse click.



The **Color Filling** function stays active until it is switched off again. The filling **Color** can only be modified (selected) when the **Color Filling** function is switched off.

Add New Color



If you want to fill with a specific color you can either select it from the histogram area (i.e. click on the desired color) or add a new color to the palette by clicking this icon. Adding colors is only possible if less than 256 colors are used in the image.

Automatic Color Cleanup (Reduction)



Toolbar: **Color Tools**

Menu: **Raster ► Color ► Automatic Color Cleanup**

CMD: **VPCOLORCLEAN**

Click this icon to perform an automatic color reduction. The algorithm searches for the main colors in the image and combines color pattern to solid colors as far as possible. For remaining color pattern use the interactive color reduction process.

Palette Functions

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Load Palette

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		



Toolbar: **Color Tools**

Menu: **Raster ► Color ► Load Palette**

CMD: **VPPALLOAD ► Dialog**

This icon opens the load dialog for selecting a palette file (format: **.RPL**). The selected file is loaded to the active raster image.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Save Palette



Toolbar: **Color Tools**

Menu: **Raster ► Color ► Save Palette**

CMD: **VPPALSAVE ► Dialog**

Click this icon to save the current palette from the active image to a file. This function is only available with indexed raster images. The palette will be saved in the format **.RPL**.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Palette Transformation

General

The transformation of a palette compensates for possible scan weaknesses (e.g. contrast or brightness) or lets you modify an image's color representation to individual needs. Especially converting gray scale images to false color images allow for a better distinction of specific information.

There are several palette transformation functions to choose from, depending on how the image should look like after it has been transformed. However, each transformation function will not change the index structure of the image palette but only the assigned values for the three basic colors. Thus, the original pixel information remains untouched.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Transformation



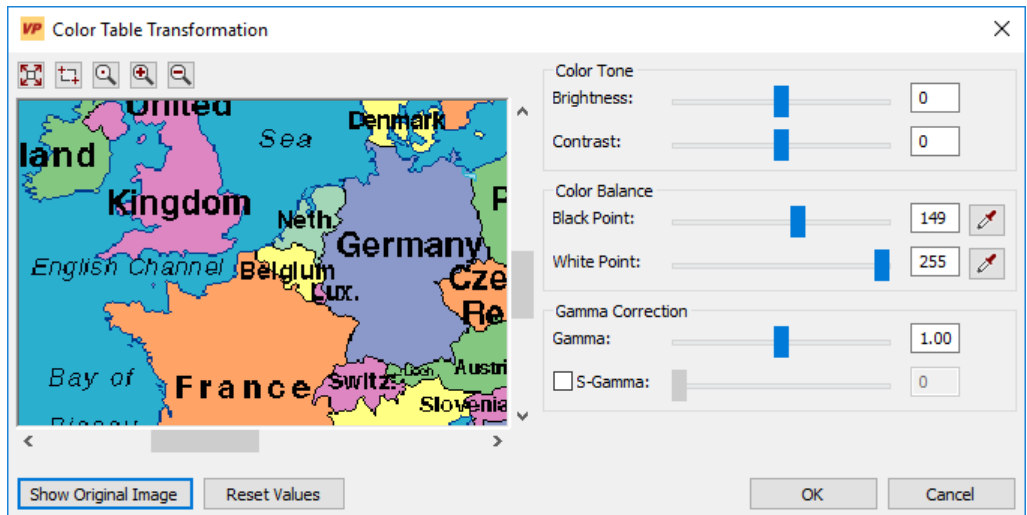
Toolbar: **Color Tools**

Menu: **Raster ► Color ► Palette Transformation**

CMD: **VPPALTRANS ► DIALOG**

CMD: **VPPALTRANS [/B <VALUE>] [/C <VALUE>] [/BP <VALUE>] [/WP <VALUE>] [/G <VALUE>] [/SG <VALUE>]**

Enhances the quality of an image by transforming the color table. Changes can be made fast and easy in the **Color Table Transformation** dialog or directly from the command line. For more information about the transformation functions see next topic: **Transformation (Advanced)**.



Color Tone

Brightness [/b <brightness>]: Range from **-127 to 127**, default **0**.

Contrast [/c <contrast>]: Range from **-100 to 100**, default **0**.

Color Balance

Black Point [/bp <black point>]: Range from **0 to 255**, default **0**.

White Point [/wp <white point>]: Range from **0 to 255**, default **255**.

Gamma Correction

Gamma [/b <gamma>]: Range from **0.14 to 7.0**, default **1.00**.

S-Gamma [/b <turn point>]: Range from **0 to 255**, default **255**.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Show Original Image / Show Preview

Switch from preview to original image and back.

Reset Values

Any changes will be reset.

Transformation (Advanced)

Menu: **Raster ► Color ► Advanced Palette Transformation**

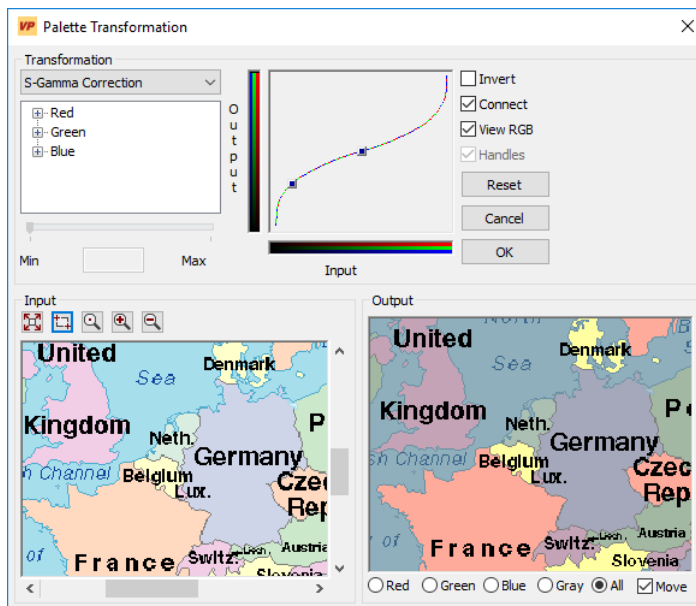
CMD: **VPPALTRANSADV ► DIALOG**

Start the command to open the dialog for the advanced palette transformation. It is organized in three sections:

- **Transformation Area**
- **Output View**
- **Input View**

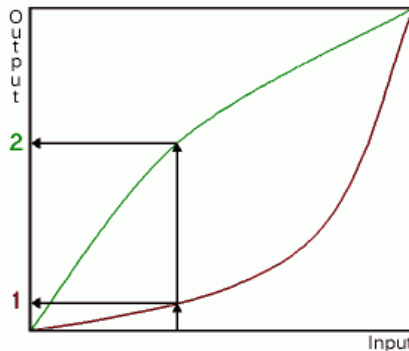
Transformation Area determines how palette entries will be modified. The input and output areas both contain views of the actual image, however, the output view shows the image based on the currently transformed palette.

In the transformation area you select the transformation function and define process values if required. The graphical representation of the transformation is shown on the right and allows for adjustments.



■ VPstudio	■ VPraster	■ VPmap pro
□ VPstudio mono	□ VPraster edit	■ VPmap
□ VPlite		

The vertical axis in the transformation view represents the output values of the current palette (black is on the bottom, white on top). In case you have chosen a colored image the axis is displayed in red, green, and blue. Otherwise, it will appear in gray. The palette's input values are represented accordingly by a horizontal axis (black is on the left, white on the right). The Output axis' color succession can be reversed using the Invert checkmark. The following diagram shows how to read the Transformation View.



With two different transformation functions used in this example above the same value of the input palette is transformed into two different output values.

Transformation Functions

The combo box allows selection of one of the available transformations:

- **Automatic Brightness/Contrast***
- **Brightness/Contrast***
- **Automatic Smooth***
- **Smooth*[#]**
- **Gamma Correction**
- **S-Gamma Correction**
- **Steps**
- **Lines**

The transformations marked with (*) bear a default setting when selected depending on the image. "Automatic" transformations do not carry settings that can be modified. Transformations marked with ([#]) can only be modified in the numerical view. Selecting a new transformation changes both the numerical and the transformation view. To modify the transformation settings you can edit in both views.

Connect {on/off}

When this checkmark is **on** and a color image is to be processed, then the three basic colors red, green, and blue will be treated together. Thus, only one curve is displayed in the Transformation View.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Handles

Moreover, the combined treatment of the three basic colors with **Connect** will set a primary active color. It is the one that carries handles, even if the **Handles** checkmark is not set. It is also highlighted in the numerical view, or it is the only color that is represented by a curve (if **Show RGB** is deactivated). With **Connect**, the active color's current attribute values will be assigned to the remaining two basic colors.

View RGB

If this checkmark is **on** and **Connect** is **off** with a color image, there are three curves, each with a different color.

To modify only one color set **Connect** to **off**. Then the active color's curve (red, green, or blue) is displayed. Depending on the **View RGB** checkmark setting the other two colors will either be accessible, too, or they are not displayed.

There are three ways to select a specific color for modification:

- Select the desired color (Red, Green or Blue) in the numerical view.
- Click with the right mouse button in the transformation view window.
A popup menu appears for selecting a color.
- Set the **Handles** checkmark and click on the desired color's curve handle.

The parameter settings of a transformation can be modified in the numerical view or in the transformation view.

In the numerical view, select the parameter by expanding (i.e. double clicking) the desired color, and click on one of the parameters. You can modify the value either by moving the slider or by entering the desired value in the edit field. The affected handle will be indicated by changing to a brighter color. The transformation area and the output view show the new setting accordingly.

In the transformation view, dragging any one of the curve handles can modify the transformation. To move the transformation curves with the appropriate handle the cursor symbol changes. The numerical area and the output view show the new setting accordingly.

Steps and Lines

The **Steps** and **Lines** transformations do not carry curve handles by default. However, you can place optional handles on the curves in the Transformation View by clicking with the left mouse button. To remove a handle click on it with the right mouse button.

Reset

Sets the actual transformation back to its initial state.

Cancel

Closes the dialog without modifying the image's palette.

OK

Closes the dialog, confirming the modifications to the image's palette.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Output Area

The output area is organized in two sections: the output view and a set of buttons to modify the output view and, thus, the image's palette.

Red, **Green**, and **Blue** display an image in the corresponding colors of the palette. **Gray** generates a gray scale representation of a color image while **All** displays an image in all of the three basic colors.

The output axis of the transformation view reflects a modification to these settings. Selecting **Red**, **Green**, **Blue**, or **Gray** can also change the numerical view and the transformation view.

With **Move** set to **on**, the output view will be synchronized with the movements of the input view sliders.











Input Area

The input view shows the whole image by default. The view can be modified using the standard zoom and pan functionality.

The output view changes according to the modifications of the input view.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Palette Transformation Table

Transformation	Effect	Value, Handle
Automatic Brightness/Contrast	The palette is stretched to fit the whole dynamic range without loss of information.	-
Brightness/Contrast	The brightness and contrast of the image can be adjusted.	Brightness(X),  Brightness(Y),  Contrast, 
Automatic Smooth	The palette is modified so that in the Output every palette entry has the same frequency.	-
Smooth	The palette is modified so that in the Output each palette entry has the same frequency. The scale factor modifies the transformation.	Scale factor, -
Gamma Correction	Black and white remain unchanged while the intermediate palette values are modified: Gamma<1: stretching of lighter values, compression of darker values. Gamma >1: stretching of darker values, compression of lighter values.	Gamma, 
S-Gamma Correction	Black, white, and the Turnpoint remain unchanged while intermediate palette values will be modified. Gamma<1: stretching of lighter and darker values, compression of values within the Turnpoint range Gamma>1: compression of lighter and darker values; stretching of values within the Turnpoint range.	Gamma,  Turnpoint, 
Steps	A range of Input values is transformed to one Output value.	Handle X,  Handle Y, 
Lines	Multiple effects depending on individual value settings (handles).	Handle X,  Handle Y, 

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Color Filter Operations



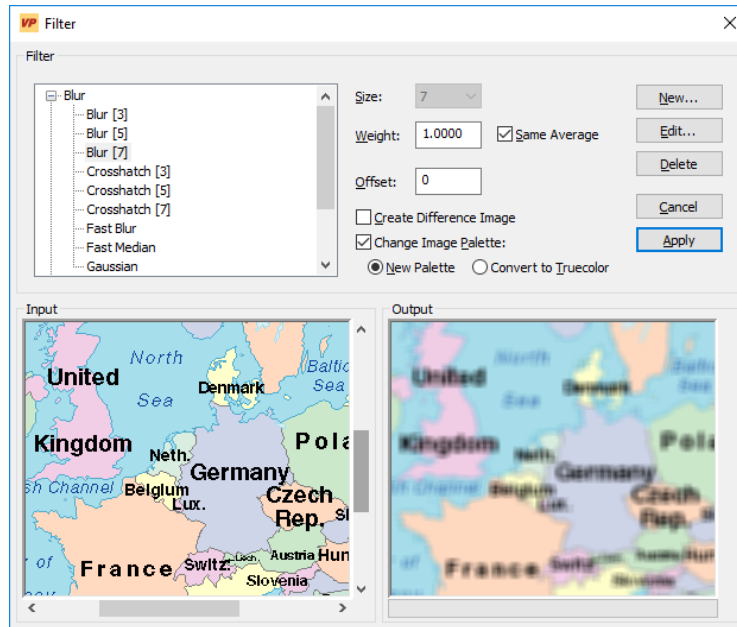
Toolbar: **Color Tools**

Menu: **Raster ► Filter ► Color Filter Operations**

CMD: **VPFILTER ► DIALOG**

With these filter functions, you can improve the quality of your color or gray scale images. For quality reasons use filters only on full color or at least 256 gray scale raster files.

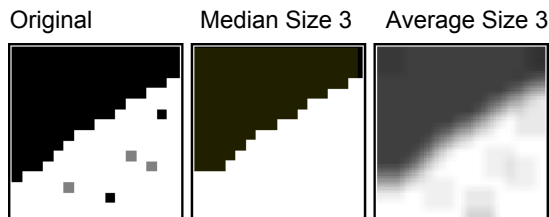
Click this icon to start filter operations on the active image. The following dialog opens:



Select the desired filter and the results are displayed in the output section. With respect to the selected filter the following options apply.

Size

Select the desired filter size. The size value indicates the border length of a square (matrix). The filter calculation will be based on the pixels within the range of this square.



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Weight

Weight controls the filtering result being multiplied with the entered value, thus stretching or compressing the generated result (contrast).

Default: 1.0000

Same Average {on/off}

This check box provides for a selection whether the filter's coefficient should be weighted in a way that the average value in the original remains unaffected. This option has no meaning for filters bearing a coefficient sum of 0. For this kind of filters the image's dynamic range will be shifted to enable the display of possibly generated negative values.

Default: off

Offset

Offset moves the filtering result to brighter values with a positive offset and to darker values with a negative offset (brightness).

Default: 0

Create Different Image {on/off}

If checked **on** the color differential between the original and the filtered image will be created and displayed.

Default: off

Apply

If the results in the output section are satisfying, click on **Apply** to execute the filter on the active image. The filter dialog disappears.

Change Image Palette

If the active image is based on a palette (i.e. it is not a true color image) you can create a **New Palette** or convert the file to **True Color**.

Fast Median and Fast Blur (Average)

These filters are used to decrease noise in an image. However, border transitions will be diffused. The **Median** filter is slower than the **Average** option, but it has a lower blur effect on color transitions. Neither will affect the color palette.

All other blur filter have a fixed size setting, ready for use. The size setting is indicated but cannot be changed.

Edge Detection (Sharpen) Filter

Select from the listed filters. There are mainly two well known basic filter groups available: Kirsch and Laplace. The filter matrices can be viewed in the **Filter Matrix** dialog box (click on **Edit** after you have selected a filter).

Effect

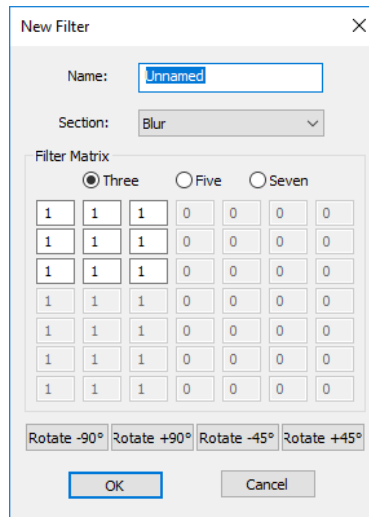
Select from the listed filters.

Custom

Design your own filter matrix. The application of filters in image processing is a very complex subject that cannot be described in detail in this manual. Only those with color processing experience should work on the items in this section, since unpredictable and unwanted image manipulations are likely to occur otherwise!

New

The **Filter Matrix** dialog opens:



Enter a name and select the desired values for your filter.

This dialog allows for defining several filter options. With **three**, **five**, and **seven** you can switch between the available filter sizes. If a matrix size applies to a filter it will be listed. Otherwise the filter will not be listed and the matrix elements receive a **0** as default value.

Rotate - 90° rotates the displayed filter a quarter-turn clockwise.

Rotate +90° rotates the displayed filter a quarter-turn counter clockwise.

Rotate - 45° rotates the displayed filter an eighth-turn clockwise.

Rotate +45° rotates the displayed filter an eighth-turn counter clockwise.

Edit




























Allows reviewing and/or modifying any available filter matrix. If you modify a listed filter you will be asked if you want to overwrite the existing definition. You may also assign the new filter to another section or even create a new filter section.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Delete

Deletes a selected filter.

Custom Filter Table

Filter Type	Name	Size			Direction
		3	5	7	
Blur Filters	Blur	✓	✓	✓	0
	Gaussian	✓			0
	Crosshatch	✓	✓	✓	
Edge Detection Filters	Horizontal	✓			
	Vertical	✓			
	kirsch_e	✓			
	kirsch_n	✓			
	kirsch_ne	✓			
	kirsch_nw	✓			
	kirsch_s	✓			
	kirsch_se	✓			
	kirsch_sw	✓			
	kirsch_w	✓			
	l2rdiagonal	✓			
	laplace1	✓			
	laplace2	✓			
	laplace3	✓			
sharpen	✓	✓			
speckle	✓				
sobel_horiz.	✓				
sobel_vert.	✓				
Effect Filters	north	✓			
	south	✓			
	west	✓			
	east	✓			
	3d			✓	
	deeppress		✓		
	jigglevert		✓		
woodcut	✓				

Fill Function



Toolbar: **Color Tools**

Menu: **Raster ► Color ► Fill**

CMD: **VPFILL**

This function operates only on paletted or b/w images.

Click this icon. The cursor changes to a fill cursor. Click into the desired area of your active raster image.

Default Filling

As a default the system generates from the pattern around the clicking position the mean value of the found colors and fills the area with the closest color from the palette. With the option **Fill Exact** only a coherent area will be filled which carries the same color value as the pixel clicked.

Filling Options

Clicking the right mouse button allows to select different filling modes from the context menu:

Paletted Images

- Use Mean Color of Region (default)
- Use Active Color of Image (defined in dialog **Image Settings**)
- Use Background Color of Image (defined in dialog **Image Settings**)
- Use Active Color
- Fill Exact

B/W Images

- Fill with Raster
- Erase Raster

Clicking repeatedly into the same region at slightly different positions generates best filling results, even though the color pattern may vary.

Color Image Conversion

Convert Image Palette/Type



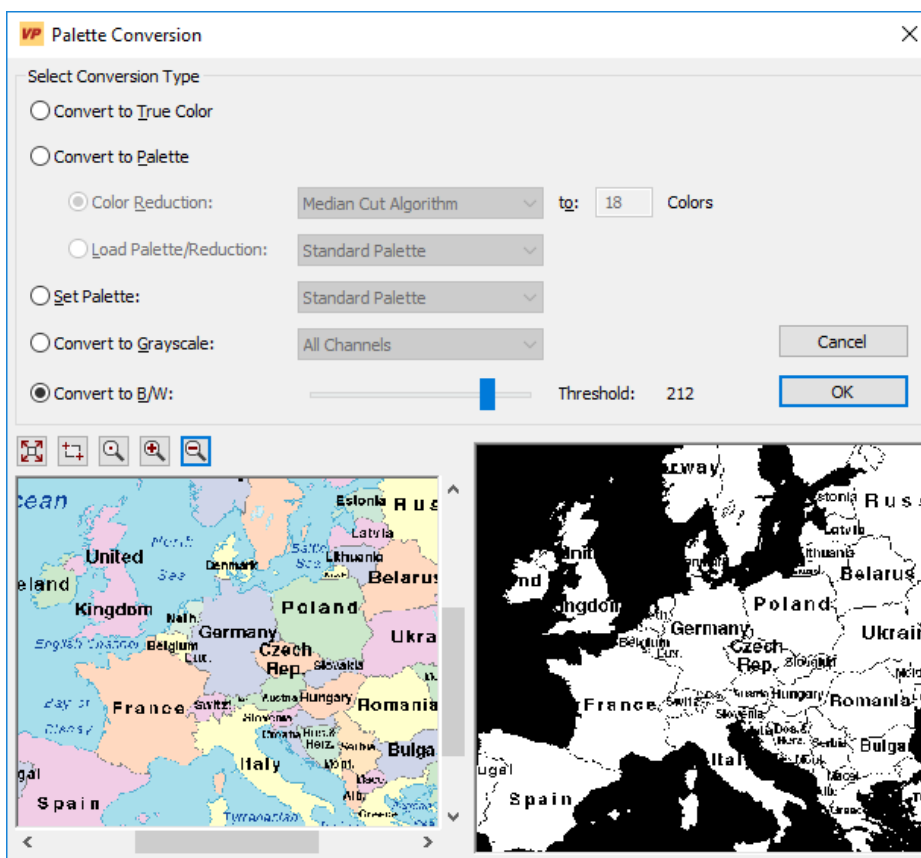
Toolbar: Color Tools

Menu: **Raster ► Color ► Convert Image Palette/Type**

CMD: **VPCONVERTPAL ► DIALOG**

CMD: **VPCONVERTPAL /cv <value> [/rm <value>] [/c <value>] [/lp <value>] [/sp <value>] [/gray <value>] [/bw <value>]**

This conversion function lets you easily convert an image with regards to the contained colors/gray scales. A dialog opens for specification of the conversion process:



Convert to True Color [/cv 0]

Select this option to convert the image into a full color file (RGB).

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Convert to Palette [/cv 1]

Select this option to convert the image into an indexed file with a maximum of 256 colors.

Color Reduction [/rm < method>] [/c <number of colors>]: Select an automatic color reduction method and the number of colors you wish to reduce to.

Load Palette/Reduction [/lp <palette>]: Choose a system palette or load your previously saved palette or color reduction file (*.RPL). The current image palette will be reduced and mapped to the selected one.

Set Palette [/sp <palette>]

This option is only available for indexed images. The current image palette will be replaced by a system palette or a loaded palette. The colors are not mapped to the selected palette.

Convert to Grayscale [/gray <Channels>]

Converts the image palette to grayscale. You can also choose the channel for conversion:

- All Channel <0>
- Red Channel <1>
- Green Channel <2>
- Blue Channels <3>

Convert to B/W [/bw <threshold>]

Binarizes the image. Select a threshold by moving the slider for setting up the separation between black and white.

Default Threshold: 128

Pan and Zoom

Use the slider buttons to navigate inside the preview. There are several zoom options available.



Zoom All displays the entire image in the preview. This will be the active view after opening the dialog.



Zoom Window switches the cursor to a crosshair in the preview to select an image area for a zoom command.



Zoom 1:1 switches the cursor to a magnifier glass in the Preview. Click the desired center of the view with the left mouse button for zooming in.



Zoom in, Zoom out.

Color Classification

General

The classification of colors is an alternative method to reduce the number of colors (i.e. the amount of data) in an image – especially of color patterns. The process as featured in **VP** software and described in this chapter is a combination of user interaction and automatic routines.

The principal concept of color classification is based on combining color patterns scattered over an image into a single color automatically. This is based upon probes taken from the image and then extracting the color pattern information into "class" information.

Imagine a scanned map having many shades of blue colors that represent water areas. In order to reduce the number of these different blue tone patterns, they will be gathered, then "classified" automatically and assigned as a single class with the color BLUE. At the end, this color will be given a title "nickname" to symbolize "water areas" in the map. Hence, now the color graphic information has been simplified, such as "blue" for water, "brown" for land, "green" for vegetation, "red" for streets, "black" for text, and so on.

To attain a proper automatic classification, you need to initially set the program to the colors you want to assign as these color group classes. This is done by assigning color probes from representative areas in the image. The program will then process and generalize this information to be used for the entire image. The operational steps are described as follows.

Color Classification

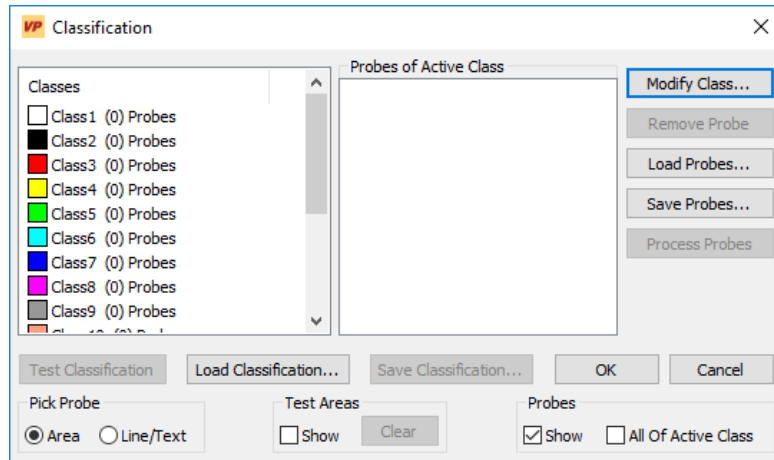


Toolbar: **Classification**

Menu: **Raster ► Color ► Color Classification**

CMD: **VPCLASSIFY ► Dialog**

Load a color or grayscale image and start this function. The **Classification** dialog appears:



There are 16 classes available. Each name and color of a class can be modified with **Modify Class**. The color of a class (target color) can be specified independent from the actual color to be classified.

These steps are required to run a classification process


- **Pick Probes:** Link classes with areas of similar colors/color patterns in the image. Not all classes need to be applied.
- **Process Probes and Test Classification:** Test whether the selected probes cover all actual color areas in the image appropriately. Improve on results by adding or removing probes.
- **Run Classification:** The image will be converted according to selected probes and specified classes

Pick Probe



Click on a list item in **Classes** to activate a class. Depending on the active **Pick Probe** option the cursor will appear as a bucket symbol (**Area**) or as a pipette symbol (**Line/Text**).

Select probes for the active class by clicking on different color areas in the image or use window rectangle selection. Matching areas in the image will then be displayed in the active class color. If the picked probe is not appropriate for a specific class click the right mouse button to discard it or click on the button: **Remove Probe**

 If you take more probes for a particular class, the classification quality can improve. This is especially important if color patterns vary in different areas. It is recommended that you do not reduce colors until you have completed classification of colors. This may improve on the color classification process.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Save Probes

Selected probes will be saved. You also can use these probes for other, structurally similar images.

Load Probes

Loads saved probes. Corresponding image areas will not be displayed.

Process Probes, Test Classification

Click on **Process probes** to generate a new classification according to the probes.

A hit rate will be calculated for each probe (in percentage). High percentages indicate that similar color areas may be classified in the image just as well. Low percentages indicate that probes do not cover color areas in the image appropriately. Probes with lower hit rates have a negative effect on the overall classification process. Thus, they should be removed and replaced by new probes taken from the image.

For each class and its probes, the minimum hit rate will be displayed in a list field (**Min.Hit Rate**). Check all classes and delete probes (**Remove Probes**) with low hit rates (<10-20%). Consider to pick and add new probes for better results.

The classification must be re-calculated (**Process Probes**) if probes have been added or removed.

Check the current classification setup by clicking on **Test Classification**. Now you can select a sample image area to test your classification setup. According to your results you can modify your setup for individual classes (delete and add probes). You can test several different sample image areas.

Click **Save Classification** to keep your results. You can now use this classification setup for other, structurally similar images (**Load Classification**).

Test Areas

Results of image test areas can be made visible/invisible (**Show on/off**) or deleted (**Clear**).

Run Classification

Click **OK** to run the **Classification** on the entire image. The dialog closes and the function is finalized. **Cancel** leaves the dialog without prompting to save a classification setup.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

SECTION 8

CAD TOOLS

General Information

VP software offers a wide range of CAD drawing functions. Each of them is supported by a set of **Drawing Aids** (see **section 3**) e.g. snapping, grid etc. All coordinates/values can also be entered via **Command Line** (see **Section 3**). Coordinate values can be entered absolute as x,y , relative as @x,@y; or relative as length and angle as d<phi. You can also mix absolute and relative values (e.g. @x,y or x,@y).

The last used coordinate/value is offered in the command line as <x,y> and can be taken over as is with **[Return]**, or for editing with **[Tab]**.

Raster Settings

All drawing functions can be executed in respect to the raster below (if any). This can be an immediate rasterization of the CAD entity, or a smart erase of the underlying raster pixel structure.

The following functions allow for defining several drawing features. The functions are valid for any kind of raster image (b/w, gray scale, color).

Active Image only {on/off}



Toolbar: **Direct Raster Edit**

Menu: **Edit ► Work only on Active Image**

CMD: **VPSIMAGE**

When switched **on** the subsequent raster edit operations will only be executed on the Active Image.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Dynamic Width {on/off}



Toolbar: **Direct Raster Edit**

Menu: **Edit ► Edit Raster ► Dynamic Width**

CMD: **VPDYNWIDTH**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

This function is only available if the active layer is set to a **Line Width** (Display) "**By Entity**". Setting **Dynamic Width** to **on** allows for automatically assigning the line width of the underlying raster entity where the draw command starts. This assigned line width remains fixed until a new width is detected. The detected line width is indicated in the line width field.

Due to the possible roughness of raster entities the **Dynamic Width** derived from an entity may differ by 1-2 pixels.

Erase Raster Background {on/off}



Toolbar: **Direct Raster Edit**

Menu: **Edit ► Edit Raster ► Erase Raster Background**

CMD: **VPERASERASTER**

When drawing **Erase Raster [Ctrl-E]** can be used to erase the raster original in the background simultaneously.

In case entities are already selected when the function is started their structure will be erased from the underlying raster. The functions keeps its previous state (**on** or **off**).

This function can be only activated (set to **on**) if a raster image is available in the document.

With color or gray scale images the background will not be erased. Instead, the background pixels to be erased will be filled with the **Background Color** defined in **Image Settings**.

Rasterize Online {on/off}



Toolbar: **Direct Raster Edit**

Menu: **Edit ► Edit Raster ► Rasterize Online**

CMD: **VPRASTERIZEONLINE**

This function can be only activated (set to **on**) if a raster image is available in the document. Then, drawn entities are rasterized immediately into the underlying raster using the assigned width. If the active layer has been assigned the "Rasterize" width setting "**By Entity**", the line width of the raster entity can be defined (functions **Line Width**, **Dynamic Width**) and is used for the rasterization. Otherwise the "**Rasterize**" width of the layer will be used.

The original drawn vector entity will be deleted.

With color or gray scale images the entities are rasterized in the color they have, or in the closest color available from the color palette.

Erase Online {on/off}



Toolbar: **Direct Raster Edit**

Menu: **Edit ► Edit Raster ► Erase Online**

CMD: **VPERASEONLINE**

This function can only be activated (set to **on**) if a raster image is available in the document. Then, drawn entities are rasterized immediately similar to the function **Rasterize Online**. However, the rasterize entities will be erased from the underlying raster.

The original drawn vector entity will be deleted.

With color or gray scale images the "erase" entities are rasterized into the image with the background color defined in **Image Settings**.

CAD Options

Defines the default behavior of some/all CAD Tools



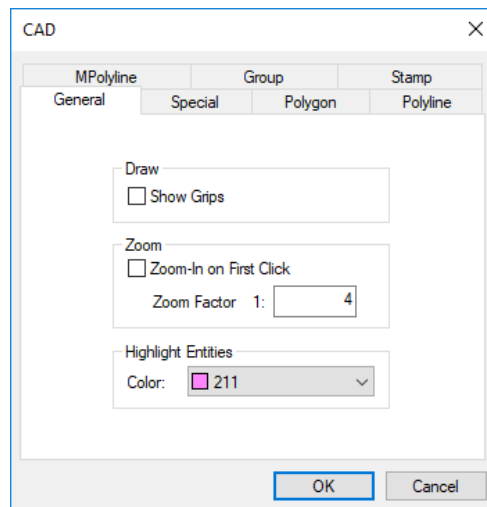
Toolbar: **Draw**

Menu: **Options ► CAD Options**

CMD: **VPDRAWOPTIONS ► Dialog**

A dialog box opens for selection and value input. The settings apply to all drawing functions.

General Tab



Show Grips {on/off}

If set to **on** the grips of all entities are displayed while drawing. This provides help for designing new entities by snapping to existing start, end, and center points.

Zoom-in on First Click {on/off}

If set to **on** the program zooms in on the first mouse click of a set point while in drawing mode for a more precise positioning (with the second mouse click).

Zoom Factor specifies the factor of zooming in from the current zoom state.

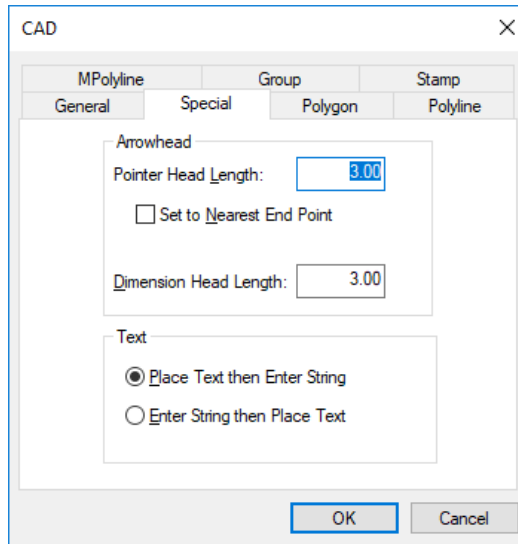
Default: **off**
Default Zoom Factor: **1 : 4**

Highlight Entities

Applies to all functions with preview. Select the color in which highlighted entities are drawn.

Default: **Color 211**

Special Tab (only Windows)



Arrowhead

The length of a **Pointer Arrowhead** (Leader) and a **Dimension Arrowhead** can be defined. Values can be entered according to the selected drawing unit. The values only affect new entities.

Defaults: **3.0 [mm] or 0.1 [inch]**

Set to Nearest End Point {on/off}

If set to **on** the **Pointing Arrowhead (Leader)** will be positioned at the nearest end of a selected line automatically (one click). Otherwise you have also to define the direction of the pointing arrowhead (two clicks).

Default: **off**

Text

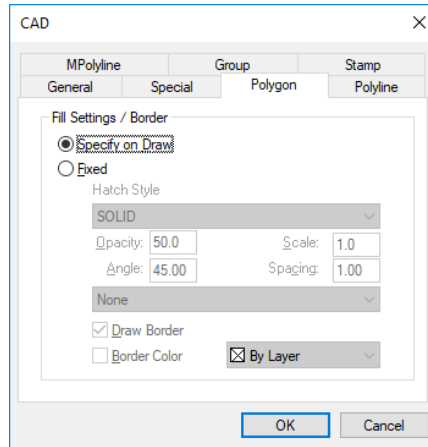
Defines the procedure for creating text entities:

Place Text then Enter String First the insertion point and rotation is specified, then the text is entered.

Enter String then Place Text First enter the text, then specify the insertion point and rotation.

Default: **Place Text then Enter String**

Polygon Tab (only Windows)



Defines the settings to generate filled polygons.

Specify on Draw

While drawing a polygon a dialog will pop up to specify the fill pattern individually for each polygon to draw.

Fixed

All polygons will be created with the respective specified pattern.

Hatch Style

Select the fill pattern from a list of hatch styles.

The fields **Opacity**, **Scale**, **Angle**, and **Spacing** are available for editing depending on the selected style. There are three predefined Hatch Styles:

SOLID the edit field **Opacity** is available for entering a value from **0-100%**

LINES the edit fields **Angle** and **Spacing** are available for specifying a line based fill pattern.

CROSSHATCH the edit fields **Angle** and **Spacing** are available for specifying a crosshatched fill pattern.

For all other **Hatch Styles** the edit fields **Angle** and **Scale** are available to rotate or stretch/squeeze the fill pattern.

Default: **SOLID**
Opacity: **50%**
Scale: **1.0**
Angle: **45°**
Spacing: **1**

Draw Border

When **on** the border lines of the polygon are displayed. The elements line width is used.

Default: **on**

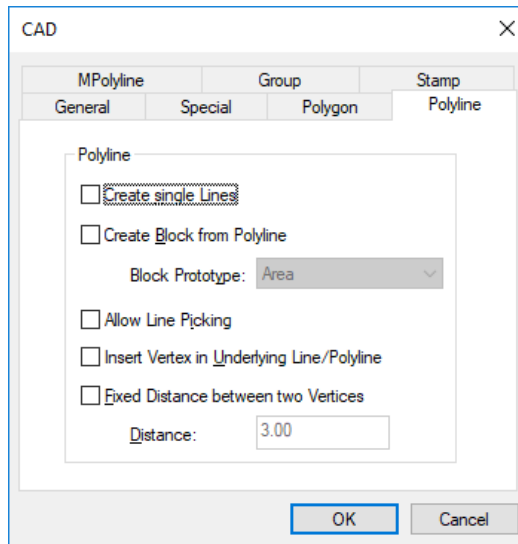
Border Color {on/off}

If **on** the borderlines of the polygon will be displayed in the selected color. Otherwise the element color is used.

Default: **off**

Default: **By Layer**

Polyline Tab (only Windows)



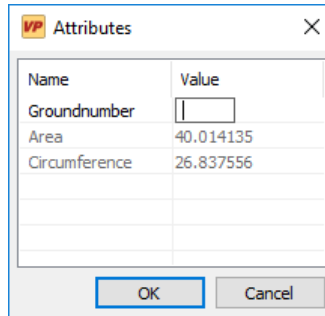
As Multiline {on/off}

If set **on** a number of single 2-point lines will be generated instead of a polyline. Each line can be assigned to a different layer, color, or linetype while in drawing mode.

Default: **off**

Create Block from Polyline {on/off}

A block is created after drawing a polyline (or MPolyline or Rectangle). The block consists of the element and the attributes of a specified **Prototype Block** (the geometry of the latter will be ignored). A dialog appears to enter attribute details:



Example: Prototype Block **Area**

The Prototype Block **AREA** will be offered as default. The block contains **Parcel Number**, **Area** (default value @area) and **Circumference** (default value @circumference). Default values will be filled automatically.

For more default value options with attributes see below: Create Block ► Attributes ► Attribute [Definition Properties](#).

Default: **off**
Default Block Prototype: **AREA**

Allow Line Picking {on/off}

When activated existing lines or polylines can be picked, so that they also become part of a new polyline. Thus, these vertices will be doubled, belonging to the existing lines and to the new polyline.

Default: **off**

Insert Vertex in Underlying Line/Polyline {on/off}

If you draw a polyline and set a vertex on a underlying line or polyline, then this underlying entity will be edited automatically. It will receive an additional vertex at the same position as the new polyline. A line will be modified to a polyline.

In case the new polyline only crosses without setting a vertex then the underlying line/polyline will not be modified.

Default: **off**



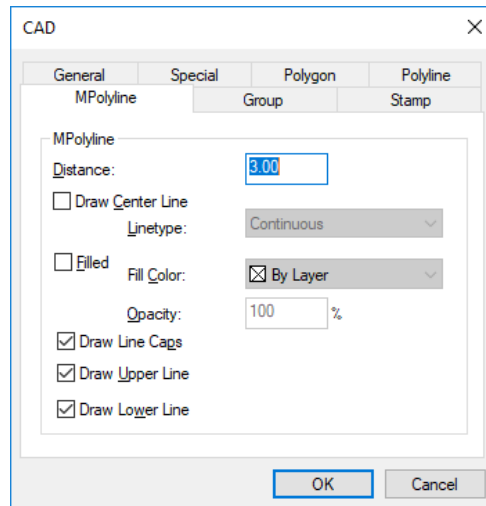
You can use only **one** of the two above options at a time!

Fixed Distance between two Vertices {on/off}

When **on** the next vertex can only be placed in a defined **Distance** from the previous one. This way you can digitize an underlying raster polyline with a predefined accuracy.

Default: off
Distance: 3.0 [mm] or 0.1 [inch]

MPolyline Tab (only Windows)



Distance

Define the **Distance** between the two borderlines of the **MPolyline**.

Default: 3.0 [mm] or 0.1 [inch]

Draw Center Line {on/off}

When **on** the **Center Line** of the MPolyline is also drawn. Also, a special **Linetype** for the **Center Line** can be specified..

Default: off
Linetype: By Layer

Filled {on/off}

When **on** the area between the two borderlines of the MPolyline will be drawn in the specified **Color** and **Opacity**.

Default: off
Color: By Layer
Opacity: 100%

Draw Line Caps {on/off}

When **on** flat **Caps** will close an MPolyline at start and end points.

Default: **off**

Draw Upper Line {on/off}

When **off** the upper border line of the MPolyline will not be drawn.

Default: **on**

Draw Lower Line {on/off}

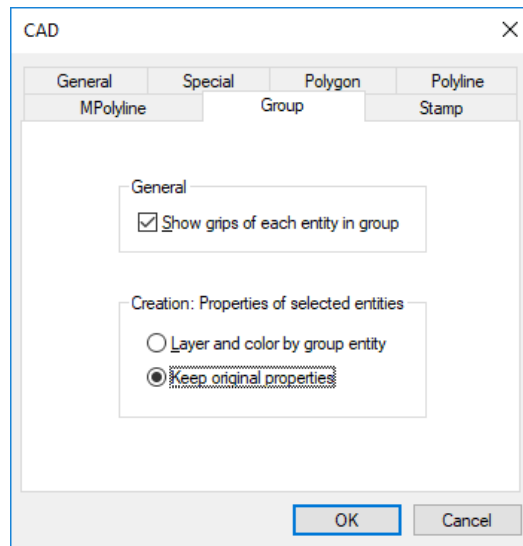
When **off** the lower border line of the MPolyline will not be drawn.

Default: **on**



The terms **Upper Line** and **Lower Line** are defined when drawing a line from left to right.

Group Tab (only Windows)



Show grips of each entity {on/off}

When switched **on** and a group is selected, the group's move grip and all grips of all group entities are displayed. Single entities can now be moved, rotated, and scaled in size. When switched **off** only the group's move grip is available.

Default: **on**

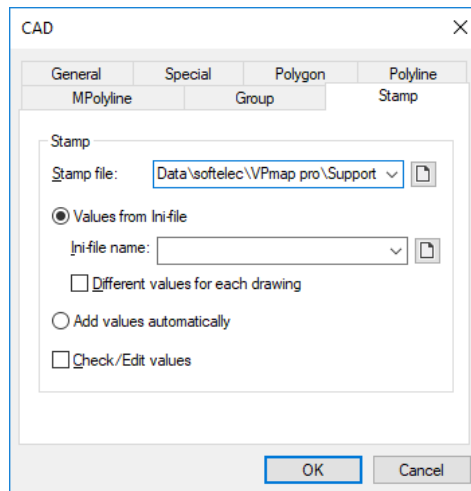
Creation: Properties of selected entities

There are two options when creating a group (see: **Edit ► Group Entities**):

- **Assign current styles**
- **Keep styles of each entity**

With **Assign current styles** all entities of a group will receive the current settings for active layer, active linetype, active color, and active line width. Otherwise, the original settings will remain.

Stamp Tab



Defines settings for the **Stamp** function.



To use the Stamp function blocks/block definitions are needed. Block definitions containing attributes can be filled with values automatically or manually depending on the name or the default value. See below in this section for more information on **Creating/Modifying Block definitions**.

Stamp File

The path and name of a file which is to be used as a stamp pattern. A sample file is provided in the VP support folder (**StampSample.rvd**).

The following settings are only relevant for stamp files containing block definitions with attributes:

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Values from an INI file

Path and name of an INI file containing default values for a stamp block.

Different values for each drawing is turned **off**: The INI file contains one section **[Stamp]**, followed by pairs of attribute name from the stamp block and its value in parenthesis.

Sample:

```
[Stamp]
Attribute1="Value 1"
Attribute2="Value 2"
```

A sample file can be found in the support directory from VP (**StampSample.ini**).

Different values for each drawing is turned **on**: The INI file contains one section per file. The association is done through the section name (e.g. **[Mech.tif]**) followed by pairs of attribute name from the stamp block and its value in parenthesis.

Sample:

```
[File1.tif]
Attribute1="Wert 1"
Attribute2="Wert 2"
[File2.tif]
Attribute1="Wert 3"
Attribute2="Wert 4"
```

Default:	Values from an INI file	on
	Different values for each drawing	off

Add Values Automatically

When **on** and depending on their **Default** value specific attributes of the stamp block will be assigned automatically.

Default value of attribute	Result
@UserName	Name of the registered user
@Date	Current date

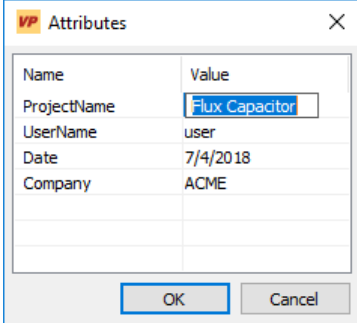
For more default value options with attributes see below: [Create Block](#) ► [Attributes](#) ► [Attribute Definition Properties](#)

Default: **off**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Check/Edit Values

When **on** the stamp block's attributes will be displayed in a dialog prior to the actual stamping. Also, at this stage attributes can be edited manually:



The dialog box titled "Attributes" contains a table with the following data:

Name	Value
ProjectName	Flux Capacitor
UserName	user
Date	7/4/2018
Company	ACME

At the bottom of the dialog are "OK" and "Cancel" buttons.

Default: **off**

Draw Functions



Drawing always occurs in the **active** layer, with the **active** line type and the **active** color. If the active line width and/or the color are set to "**By Layer**" the assignments of the active layer are used. Otherwise, the selected settings are displayed in the corresponding fields. (see **Section 4**).



With VP software as an CAD application most of the CAD draw functions are used instead. Please refer to the CAD handling and manual; it may differ from the description below.

Orthogonal Drawing

Activating the **Ortho Snap** or pressing the **[Shift]** key while executing a drawing command constrains the drawing direction to **n x 45°** of the coordinate system. Also, when **Drawing Polyline** additional segments will be drawn with orthogonal orientation in relation to the first line segment. The latter may be drawn without an orthogonal orientation. For example: draw a rectangle at any angle (**Closed Polyline**) and do not use the **Ortho Snap** in the first place. Instead, press the **[Shift]** key **after** drawing the first line.

Pixel (only Windows)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Pixel**

CMD: **VPDRAWPIX ► Toolbar**

For freehand drawing or freehand erasing in a raster image.



Drawing Color: The color used for drawing (only for grey level or color images). The Color Manager opens on click.



Pick Color: Provides a direct selection of a drawing color with a click in an image (only for grey level or color images).



Pixel Size: Drawing width in pixel.



Dynamic Width: When active a drawing width will be assigned directly according to the raster structure (e.g. a line) picked in an image (only for b/w images).



Draw Pixel: Drawing with the selected Drawing Color (grey level or color images) or in the raster color (b/w images).



Draw Pixel (Foreground Color): Drawing with the defined foreground color in **Image Settings** (see **Section 4**) (grey level or color images) or in the raster color (b/w images).



Erase Pixel: Erasing pixel with the defined foreground color in **Image Settings** (see **Section 4**) (grey level or color images) or in the raster color (b/w images).

The **[Tab]** key allows for a fast switch between **Draw** and **Erase** functions. You can increase or decrease the pen width with **[>]** and **[<]** keys.

Line



Toolbar: **Draw**

Menu: **Vector ► Draw ► Line ► Line**

CMD: **VPDRAWLINE <X1>, <Y1>, <X2|@X2>, <Y2|@Y2|°Y2>**

CAD: **_line**

Draws a 2-point line.

In the command line enter 4 coordinates or 2 coordinates (start point), and a relative coordinate (**@X2**, **@Y2**), or length (**@X2**) and angle (**°Y2** or **<Y2**).

Polyline



Toolbar: **Draw**

Menu: **Vector ► Draw ► Line ► Polyline**

CMD: **VPDRAWPOLY <X1>, <Y1>, <X2>, <Y2> [Xn, Yn,]**

CAD: **_pline**

Draws a polyline with any number of vertices. Complete the polyline by double-clicking the left mouse button or press **[Enter]**. Close an open polyline by selecting the appropriate function from the context menu.

In the command line enter the coordinates of all vertices.

Closed Polyline

Toolbar: **Draw**Menu: **Vector ► Draw ► Line ► Closed Polyline**CMD: **VPDRAWCPOLY <X1>, <Y1>, <X2>, <Y2> [<Xn>, <Yn>,]**CAD: **_pline _c**

Draws a closed polyline with any number of vertices. Complete the polyline by double-clicking the left mouse button or pressing **[Enter]**.

Press and hold the **[Shift]** key to draw **orthogonal vertices** to a previous vertex in any orientation.

Press and hold the **[Shift]** and the **[Ctrl]** key after setting the **first** vertex to draw a 2-point **orthogonal** rectangle or, pressing and holding the **[Shift]** and the **[Ctrl]** key after setting the **second** vertex to draw a rectangle with any base direction.

MPolyline

Toolbar: **Draw**Menu: **Vector ► Draw ► Line ► MPolyline**CMD: **VPDRAWMPOLY <X1>, <Y1>, <X2>, <Y2> [Xn, Yn,]**CAD: **_mline**

Draws a multi polyline with any number of vertices. Complete a multi polyline by double-clicking the left mouse button or press **[Enter]**. Close an open multi polyline by selecting the appropriate function from the context menu. The appearance of the multi polyline depends on the actual settings in **CAD Options ► MPolyline**.

At the command line enter the coordinates of all vertices.

Options (Command line / Context menu)

Distance

Changes the distance of the two border lines.

Options

Opens the CAD Options dialog. See also **CAD Options ► Tab MPolyline**

Remove

Removes the last vertex. At least 2 vertices are required.

Close

Creates a closed MPolyline by connecting the first vertex and the last vertex. The drawing process terminates thereafter. At least 3 vertices are required.

Rectangle



Toolbar: **Draw**

Menu: **Vector ► Draw ► Rectangle**

CMD: **VPDRAWPOLYRECT <X1>, <Y1>, <X2|@X2>, <Y2|@Y2>**

CAD: **_rectang**

Drawing a rectangle.

In the command line enter 4 coordinates, or 2 coordinates (first corner) and width, height (**@X2, @Y2**).

Spline



Toolbar: **Draw**

Menu: **Vector ► Draw ► Spline**

CMD: **VPDRAWSPLINE <X1>, <Y1>, <X2>, <Y2> [<Xn>, <Yn>,]**

CAD: **_spline**

Draws a B-Spline through the click points. Complete the Spline by double-clicking the left mouse button or pressing **[Enter]**.

Arc (3-point)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Arc ► 3 Points**

CMD: **VPDRAWARC3POINT <X1>, <Y1>, <X2|@X2>, <Y2|°Y2>, <X3|@X3>, <Y3|°Y3>**

CAD: **_arc**

Draws an arc through three points:

1st click point	=	start point arc
2nd click point	=	end point arc
3rd click point	=	arc curvature and direction

In the command line enter 6 coordinates or 2 coordinates (start point), and twice the distance (**@X2**), and angle (**°Y2** or **<Y2**) of the second and third point from the previous point.

Arc (4-point)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Arc ► Center, Radius, Angles**

CMD: **VPDRAWARCCENTRAD <X>, <Y>, <R>, <Phi1>, <Phi2>**

CAD: **_arc**

Draws counterclockwise an arc with a defined radius and length

1st click point	=	center
2nd click point	=	radius
3rd click point	=	start point arc
4th click point	=	end point arc

In the command line enter the coordinates of the start point, the radius, and the angles to the start and to the end point.

Arc (with tangential connections, only Windows)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Arc ► Tangent, Center**

CMD: **VPDRAWARCTANGCENT <X1>, <Y1>, <X2|@X2>, <Y2|°Y2>, <X3|@X3>, <Y3|°Y3>**

Draws an arc with tangential connections to 2 selected line ends. After selecting the two lines, radius, position and, if desired, lengthening or shortening of the lines, a third mouse click will complete the arc element. Pressing the **[Shift]** key creates orthogonal connections.

Circle (Radius)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Circle ► Center, Radius**

CMD: **VPDRAWCIRCLECENTRAD <X>, <Y>, <R>**

CAD: **_circle**

Draws a circle with center point (first click) and radius (second click).

Circle (2-point)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Circle ► 2 Points**

CMD: **VPDRAWCIRCLE2POINT <X1>, <Y1>, <X2|@X2>, <Y2|°Y2>**

CAD: **_circle _2p**

Draws a circle through two points (= diameter).

Circle (3-point)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Circle ► 3 Points**

CMD: **VPDRAWCIRCLE3POINT <X1>, <Y1>, <X2|@X2>, <Y2|°Y2>, <X3|@X3>, <Y3|°Y3>**

CAD: **_circle _3p**

Draws a circle through three points.

Circle (Tangent-Tangent-Radius)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Circle ► 2 Tangents + Radius**

CMD: **VPDRAWCIRCLETTR**

CAD: **_circle _ttr**

Draw a circle by selecting two lines/polylines, arcs, or circles and specifying a radius. There might be multiple solutions. The solution with the tangent points nearest to the click points will be inserted.

Circle (Tangent-Tangent-Tangent)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Circle ► 3 Tangents**

CMD: **VPDRAWCIRCLETTT**

CAD: **_circle _ttt**

Draw a circle by selecting three lines/polylines, arcs, or circles. There might be multiple solutions. The solution with the tangent points nearest to the click points will be inserted.

Ellipse



Toolbar: **Draw**

Menu: **Vector ► Draw ► Ellipse**

CMD: **VPDRAWELLIPSE <X1>, <Y1>, <a>, , <Phi>, <Phi1>, <Phi2>**

CAD: **_ellipse**

Draws an ellipse with the origin (first click), the semi major axis (second click) and the semi minor axis (third click).

In the command line enter the center coordinates, the length of the "a" and the "b" axis, the angle <Phi> of the "a" axis, and the start and end angle of the ellipse. A full ellipse is drawn if Phi1 = 0 and Phi = 360.

Filled Rectangle (WINDOWS only)

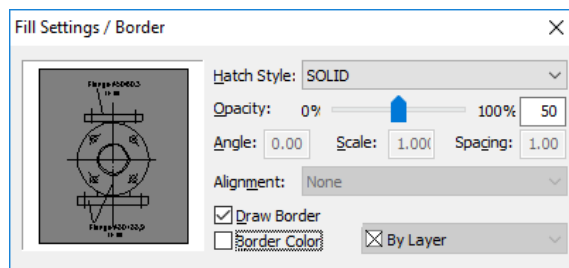


Toolbar: **Draw**

Menu: **Vector ► Draw ► Filled Rectangle**

CMD: **VPDRAWRECTANGLE <X1>, <Y1>, <X2|@X2>, <Y2|^Y2>**

Draws a filled rectangle. If **Polygon Tab Specify on Draw** is selected in **CAD Options**, a dialog pops up by starting the command which allows to set the fill pattern for each rectangle individually.



Opacity

Indicates the opacity/transparency factor for the Hatch style SOLID. A 100% value indicates full opacity without any transparency.

Default: **50%**

Angle, Scale, Spacing

A selected Hatch Style will be displayed according to these settings.

Alignment

A selected Hatch Style will be aligned in **parallel** or **vertical** according to the rectangle's/polygon's longest side line.

Default: **Do not align**

Draw Border

If **on** the borderlines of the polygon will be displayed. The elements line width will be used.

Default: **on**

Border Color

If **on** the borderlines will be displayed in the selected color. Otherwise the elements color will be used.

Default: **off**

Default: **By Layer**

Polygon (only Windows)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Polygon**

CMD: **VPDRAWPOLYGON <X1>, <Y1>, <X2>, <Y2> [Xn, Yn,]**

Draw a filled polygonal area with any number of vertices. If **Polygon Tab Specify on Draw** is selected in **CAD Options**, a dialog pops up by starting the command which allows to set the fill pattern for each polygon individually (see above).

Complete the polygon by double-clicking the left mouse button or press **[Enter]**.

Press and hold the **[Shift]** key to draw **orthogonal vertices** to a previous vertex in any orientation.

Press and hold the **[Shift]** and the **[Ctrl]** key after setting the **first** vertex to draw a filled 2-point **orthogonal** rectangle or, pressing and holding the **[Shift]** and the **[Ctrl]** key after setting the **second** vertex to draw a filled rectangle with any base direction.

Text



Toolbar: **Draw**

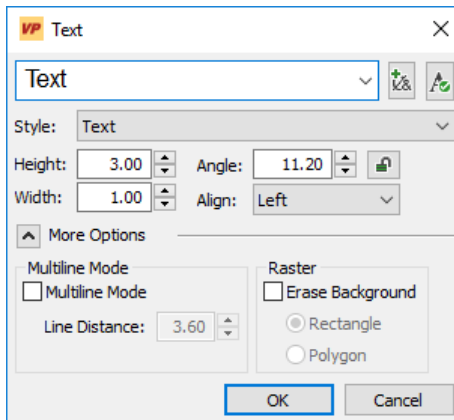
Menu: **Vector ► Draw ► Text ► Text**

CMD: **VPDRAWTEXT <X1>, <Y1>, <Text>, [Height], [W2H], [Phi], [Align]**

CAD: **_text**

Writes text in any orientation. After selecting this function, draw a line to determine the text start point (first click) and the direction. Use the **[Shift]** key for orthogonal placement. A dialog box appears for the text entry.

If the option **Enter String then Place Text** is selected the **Special Tab** of **CAD Options**, the following dialog will pop up immediately to enter the text. Then, you need to place the text.



Dialog in advanced display

A new text can be entered or a previously entered text can be selected from the list.



Shortcuts

A list of shortcuts for e.g. special characters like a diameter sign opens. It can also be used for frequently used expressions. See **System Settings - Shortcuts**.



Apply Text Style settings to text box

If **on** the text in the edit box will be displayed with the font and width-to-height settings of the selected text style (preview mode). Otherwise the system default font for edit boxes will be used.

Default: **on**

Text Style

Select the appropriate text style. All text styles defined in the **Text Manager** for this document are available.

Default: <active textstyle>

Height

The text height value. When the selected text style has a defined height unequal to 0.0 this height will be displayed. Otherwise, the last used value is displayed.

Width

The width-to-height ratio.

Default: < from text style>

Align

Text orientation according to the text insertion point.

Default: **left**

Angle

Text angle position.

Default: entered angle (drawn by line) or last angle (fix angle)



Fix Angle {on/off}

If **on** the next text will be drawn with the current angle. Only the insertion point has to be specified.

Multiline {on/off}

If set to **on** you can insert additional text lines with the specified spacing after the first text line has been entered and is displayed. Type the text string for each following line into the command line and confirm with **[Enter]**. End the text input function with **[ESC]**.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Erase Raster Background {on/off}

If you want to replace text in an raster image you may need to erase the original raster text. In this case check this function **on** and select whether to use a rectangle or a polygon for erasing.

After clicking OK in the dialog you need to define the erase area first. Then, the new text will appear. With color or gray scale images the background will not be erased. Instead, the background will be filled with the **Background Color** defined in **Image Settings**.

In the command line enter values for start point and the text, and text height, width, angle, and alignment (optional). The erase background function is not available via command line.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	<input type="checkbox"/> VPraster edit	■ VPmap
■ VPlite		

Multiline Text



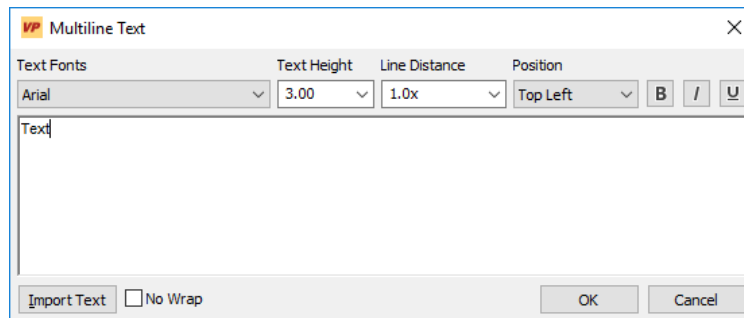
Toolbar: **Draw**

Menu: **Vector ► Draw ► Text ► Multiline Text**

CMD: **VPDRAWMTEXT <X1>, <Y1>, <X1>, <Y1> ► Dialog**

CAD: **_mtext**

Draw a rectangle to specify the text area. The dialog opens for entering and formatting the multiline text:



■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Text Fonts

All available system fonts can be selected and assigned to the text string or to portions of it.

Text Height

Select the text and enter the desired text height via keyboard.

Line Distance

Defines the spacing between text lines with reference to the standard line distance.

Position

With reference to the specified text area (rectangle) you have multiple choices to position the multi line text.

Bold, Italic, Underline

These options allow for modifying the selected font.

Import Text

Allows to importing text from a file.

No Wrap

If **on** the entered text will not be wrapped according to the drawn rectangle (text area). Otherwise linefeeds will be added where possible (e.g. at spaces) to mach the text area as far as possible.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Dimension Arrow (only Windows)




Toolbar: **Draw**

Menu: **Vector ► Draw ► Pointing (Leader) ► Dimension**

CMD: **VPDRAWARROWDIM**

Places a dimension arrow at the end of a dimension line (first selection), which intersects with or ends on an extension line (second selection). The arrowhead points to the second line. See **CAD Options** regarding arrowhead size.

Pointing Arrow (only Windows)



Toolbar: **Draw**

Menu: **Vector ► Draw ► Pointing (Leader) ► Pointing Leader**

CMD: **VPDRAWARROWPOINT**

Places a pointing arrow on a line. The **First mouse click** selects the line where you want to place the arrowhead.

If in your **CAD Option** the checkbox **Set to Nearest End Point** is **on** the arrowhead will be directly placed at one of the ends of the line. Otherwise the **Second mouse click** determines the position of the arrowhead. See **CAD Option** regarding arrowhead size.

Point



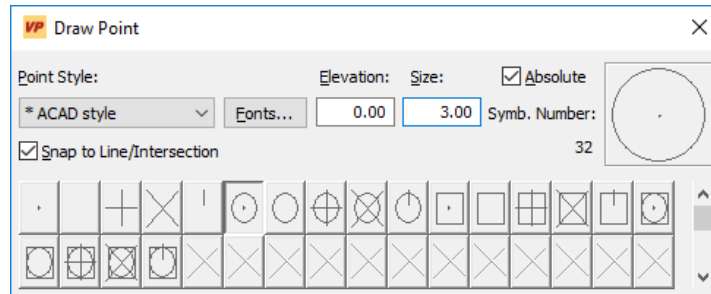
Toolbar: **Draw**

Menu: **Vector ► Draw ► Point**

CMD: **VPDRAWDONUT <X>, <Y>**

CAD: **_point**

Places a point element at the selected position. Point styles and sizes can be defined in a dialog:



Point Style

Choose a point style family from the combo box. Available are the ***Default style**, which contains only a filled donut as point style, the ***CAD style**, which contains the AutoCAD typical point styles, and any **True Type Font** which is installed on the computer. Click one of the buttons below in the combo box to select the desired **Point Style**. The number of this **Point Style** is displayed beneath the **Symb. Number**.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Fonts...

A dialog pops-up which allows you to pre-select these point style families, which should be offered in the combo box.

Default: <all available fonts>

Elevation:

Specify the elevation (Z-Coordinate) for the point(s) to be inserted.

Default: 0.0

Size

Specify the **Size** of the **Point** in base units.

Default: 3.0

Absolute {on/off}

If set **on** the specified size is absolute, otherwise it is relative, which means the point is always displayed with the same size, regardless of the current zoom state.

Snap to Line/Intersection {on/off}

When **on** an automatic snap is active to lines and/or to line intersections which lay inside the cursor box of the click position while placing a point.

Default: on

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Stamp



Toolbar: **Draw**

Menu: **Vector ► Draw ► Stamp**

CMD: **VPSTAMP** <X>, <Y>, [/XALIGN|XA <XALIGN>], [/YALIGN|YA <YALIGN>], [/INI|I <INI>], [/FILE|D|F <FILE>], [/BLOCK|B <BLOCK>], [/REVIEW|P|R]

Inserting a stamp into a document. If the stamp is defined as a block attributes can be assigned automatically or manually prior to the stamping process (e.g. user name, date, project name, etc.). The stamp will be rasterized immediately when any raster data is contained in the document.

Any file format supported by VP software can be used as a stamp. For stamp blocks an INI file (text file) can be used which contains values for a block. Settings can be defined in **CAD Options** or via command line input. See also **CAD Options - Stamp Tab** above in this section.

Stamping may be set up via the command line as follows:

X, Y	Insertion point of stamp block Default: 0.0 / 0.0
/xAlign xa <xAlign>	x-alignment of stamp block according to document. Values for <xAlign>: none: absolute coordinates left: left aligned right: right aligned center: centered vertically Default: none
/yAlign ya <yAlign>	y-alignment of stamp block according to document. Values for <yAlign>: none: absolute coordinates left: left aligned right: right aligned center: centered vertically Default: none
/Iniji <Ini>	File containing values for stamp. Default: see CAD Options
/File df <File>	File containing stamp block. Default: see CAD Options
/Block b <Block>	Name of stamp block. When the stamp file contains several blocks a specific stamp block can be selected with <Block>. Default: see CAD Options
/Review pr	Check values before insertion. Default: see CAD Options

Hatch (Fill)



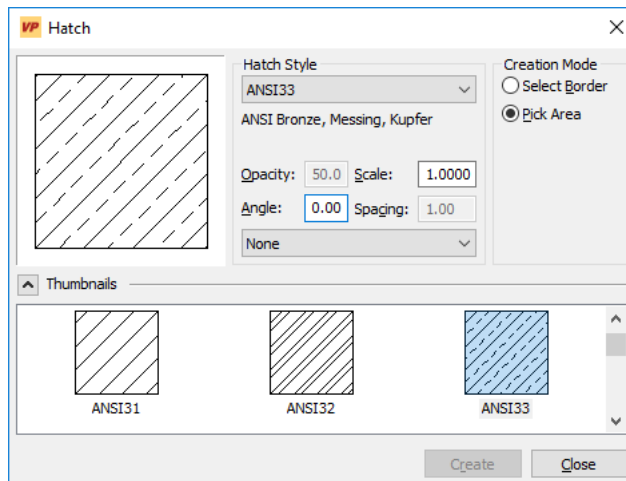
Toolbar: **Hatch**

Menu: **Vector ► Hatch ► Hatch**

CMD: **VPMAKEHATCH ► Dialog**

CAD: **_bhatch**

After selecting this function, a dialog pops up to specify a hatch style and a creation mode.



Hatch Style

Select a fill pattern from the list of hatch styles.

The fields **Opacity**, **Scale**, **Angle**, and **Spacing** are available for editing depending on the selected style. There are three predefined Hatch Styles:

- SOLID** the edit field **Opacity** is available for entering a value from **0-100%**
- LINES** the edit fields **Angle** and **Spacing** are available to specify a line based fill pattern.
- CROSSHATCH** the edit fields **Angle** and **Spacing** are available to specify a crosshatched fill pattern.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

For all other **Hatch Styles** the edit fields **Angle** and **Scale** are available to rotate or to stretch/squeeze a fill pattern.

Default: SOLID
Opacity: 50%
Scale: 1.0
Angle: 45°
Spacing: 1.0

Creation Mode

Select Border: Select the bordering lines of the desired area in sequence. Pressing **[Enter]** or **Create** creates the hatch inside the borders according to the **Hatch Style** settings. Selected text strings inside the borders will be isolated from the hatch.

A warning pops up in case the hatch area is not completely enclosed by bordering lines

Pick Area: Pick into the desired area which is enclosed by existing vector entities. The hatch inside the borders will be created according to the **Hatch Style** settings.

A warning pops up in case a completely enclosed hatch area cannot be computed from the pick point.

Show/Hide Style List

Switches the preview of the available **Hatch Styles on/off**.

Edit Hatch (only Windows)



Toolbar: **Hatch**

Menu: **Vector ► Hatch ► Edit Hatch**

CMD: **VPHATCHEDIT**

Select the hatch to edit its entities. Depending on the type of the selected hatch different edit modes are available.

If the selected hatch was created by several lines with the **Combine to Hatch** function (see section 9) or it was created by an automatic **Raster to Vector Conversion** (see Section 13), the following toolbar appears



and the selected hatch appears highlighted.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Select **Add Lines**, **Remove Lines**, or **Edit Lines** and select then the appropriate lines. Finish editing with **End Edit** or **[Return]**. Then select the next hatch to edit. Leave the command with **[ESC]**.

If the selected hatch was created by the **Hatch** command or by the **Draw Rectangle**, **Draw Polygon** command the **Hatch** dialog appears (see before) to specify another hatch style / fill pattern.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Hatch Style Manager (only Windows)

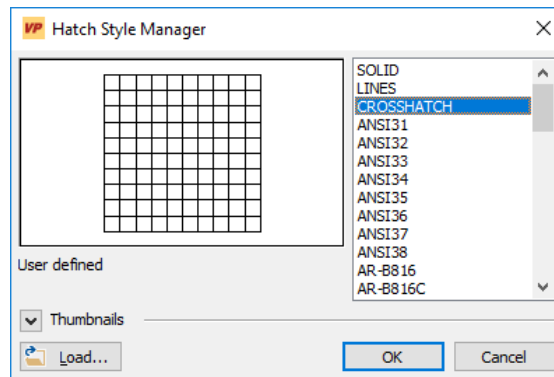


Toolbar: **Hatch**

Menu: **Vector ► Hatch ► Hatch Style Manager**

CMD: **VPHATCHSTYLEMANAGER**

A dialog pops up and displays a list off all available **Hatch Styles**.



Load from File...

Opens an **File Open** dialog to specify a ***.PAT** file. VP software supports the import of AutoCAD compatible hatch pattern files.

Show/Hide Style List

Switches the preview of the available **Hatch Styles on/off**.

Make Corner (only Windows)



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Make Corner**

CMD: **VPCORNER ► Select 2 Entities**

The end points of two selected entities (line, polylines, arcs) are lengthened or shortened to form a corner. Click-select each of the two entities close to the end to be modified.

An error message appears when it is impossible to execute this function.

Trim



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Trim Elements**

CMD: **VPTRIM ► Select Entities**

Trims entities to cutting edges.

Select the cutting edges (lines, polylines, arcs, circles, and ellipses) and confirm the selection with **[Enter]**. The selected entities appear highlighted.

Now, click an entity to trim at the next intersection with the edges. The click point defines the part of the entity to be removed. If this part lies between two cutting edges then this segment will be deleted and the entity will be transformed into two entities.

Pressing **[CTRL]** while selecting an entity, having no intersections with the cutting edges, extends the edges to find additional intersections.

Pressing **[SHIFT]** while selecting an entity, switches to the **Extend** mode and extends the entity to the next cutting edge instead of trimming it.

End the function with **[Enter]** or select **End Command** from the context menu.

An error message appears when it is impossible to execute this function.

Extent



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Extent Elements**

CMD: **VPEXTENT ► Select Entities**

Extends entities to boundary edges.

Select the boundary edges (lines, polylines, arcs, circles, and ellipses) and confirm the selection with **[Enter]**. Now, click on an entity for extension to the next boundary edge. The click point defines the part of the entity to be extended.

Pressing **[CTRL]** while selecting an entity having no intersections with the boundary edges, extends the edges to find additional intersections.

Pressing **[SHIFT]** while selecting an entity, switches to the **Trim** mode and trims the entity to the next intersection with the cutting edges.

End the function with **[Enter]** or select **End Command** from the context menu.

An error message appears when it is impossible to execute this function.

Auto Trim (only Windows)



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Auto Trim**

CMD: **VPAUTOTRIM ► Select Entities**

Adjusts entities to boundary/cutting edges.

Select the boundary/cutting edges (lines, polylines, arcs, circles, and ellipses) and confirm the selection with **[Enter]**. Select one or more entities to adjust them to the boundary/cutting edges. If an entity can be trimmed as well as extended, the mode causing the smallest modification will automatically be used.

Pressing **[CTRL]** while selecting an entity having no intersections with the boundary/cutting edges, extends the edges to find additional intersections.

End the function with **[Enter]** or select **End Command** from the context menu.

An error message appears if it is not possible to execute this function.

Chamfer



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Chamfer**

CMD: **VPCHAMFER ► Select Entities**

Bevels the edges of objects. All modes and settings can be changed either in the command line or in the context menu.

Select either two entities (line, polyline) or one polyline. The (virtual) corner or the edges will be beveled.



This cursors shows, that the function cannot be performed (wrong selection, no corner, or no space for the chamfer).

Valid Entities

Raster and Vector data

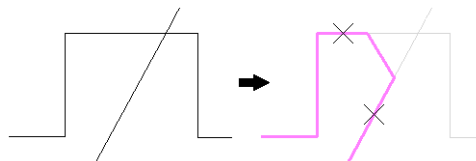
- Lines
- Polylines

Methods

Lines and Polylines Mode: Both entities will be modified. A line will be shortened or extended to the intersection (if necessary). The same applies to the selected segment of a polyline. The rest of the polyline will be removed. At the intersection a new line according to the settings (distance or angle) will be inserted.

If two lines are selected, the chamfer will be inserted as new entity. If at least one polyline is selected the entities, including the chamfer element, will be combined to one polyline.

If a line or a segment of a polyline is too short to add a chamfer of the specified size, the function cannot be performed.

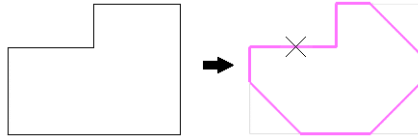


Chamfer between polyline and line (the crosses mark the click points)

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Entire Polyline Mode: The whole polyline will be transformed. At every vertex a new segment - according to the settings - will be inserted..

If a segment is too short, its corners stay unchanged..

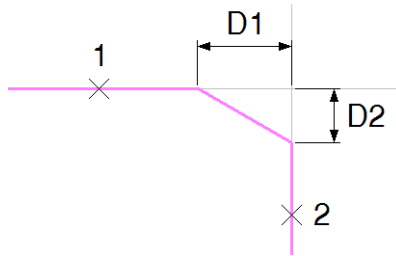


Chamfer at the vertices of a polyline (the cross marks the click points)

Default: Lines and Polylines

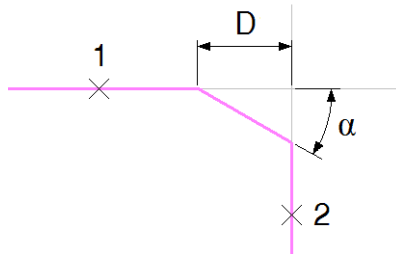
Chamfer methods

Distance method: The two distances D1 and D2 define the size of the chamfer. Distance D1 is applied to the first element, distance d2 to the second. For **Entire Polyline** mode the values D1 and D2 are applied in the order of the vertices.



The distances D1 and D2 define the chamfer (Cross 1 and 2 shows the order of selection)

Angle method: A distance D and an angle α define the size of the chamfer. Both values are applied to the first select entity. For **Entire Polyline** mode the values are applied in the order of the vertices..



The chamfer is defined by the distance D and angle α (Cross 1 and 2 shows the order of selection)

Default: Distance method

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Prompts

Select first entity or [Entire Polyline, Angle|Distance, Values]: The mode **Lines and Polylines** is active. Select the first entity by a click or change the mode with **e**. With **a** or **d** you can switch from distance mode to angle mode and vice versa. With **v** you can specify the values of active mode (D1 and D2, or D and α).

Select Entity or [Lines and Polyline, Angle|Distance, Values]: The mode **Entire Polyline** is active. Select a polyline (function will be executed immediately) or switch back to **Lines and Polyline** mode with **l**. With **a** or **d** you can switch from distance mode to angle mode and vice versa. With **v** you can specify the values of active mode (D1 and D2, or D and α).

Select first entity or [Entire Polyline, Angle|Distance, Values]: The mode **Lines and Polylines** is active. Select the second entity to finish the command.

Specify first distance <D1>, Specify second distance <D2>: Review or modify the values D1 and D2. You can enter the values directly or measure them from the drawing.

Default: **5 mm / 0,197 Inch**
 5 mm / 0,197 Inch

Specify distance <D>, Specify angle < α >: Review or modify the values D and α . You can enter the values directly or measure them from the drawing.

Default: **5 mm / 0,197 Inch**
 45°

Show Preview [on/off] (context menu)

If **on**, the result will be displayed on mouse move over an entity.

Default: **on**

Fillet



Toolbar: **Edit Vectors**

Menü: **Vector ► Edit ► Fillet**

KMD: **VPFILLET ► Select Entities**

Rounds and fillets the edges of objects. All modes and settings can be changed either in the command line or in the context menu.

Select either two entities (line, polyline) or one polyline. The (virtual) corner or the edges will be rounded. If two parallel lines are selected, an arc will be inserted to connect them, independent from the fillet settings.

⊘ This cursors signals, that the function can not be performed (wrong selection or no space for the fillet).

Valid Entities

Raster and Vector data

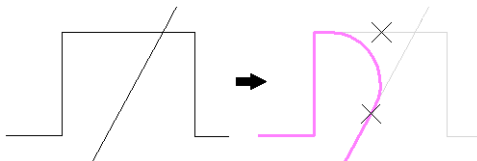
- Lines
- Polylines

Methods

Lines und Polylines mode: Both entities will be modified. A line will be shortened or extended to the intersection (if necessary). The same applies to the selected segment of a polyline. The rest of the polyline will be removed. At the intersection a new arc according to the specified radius will be inserted.

If two lines are selected, the fillet will be inserted as new entity. If at least one polyline is selected the entities, including the new arc element, will be combined to one polyline (with bulges).

If a line or a segment of a polyline is too short to add a chamfer of the specified size, the function cannot be performed.

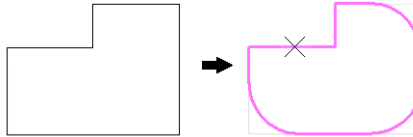


Fillet between polyline und line (the crosses mark the click points)

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Mode **Entire Polyline**: The whole polyline will be transformed. At every vertex a new bulge segment - according to the settings - will be inserted.

If a segment is too short, its corners stay unchanged..



Rounding of Polyline (the cross marks the click point)

Default: **Lines und Polylines**

Radius

The radius of the fillet.

Default: **5 mm / 0,197 Inch**

Prompts

Select first entity or [Entire Polyline, Radius]: The Mode **Lines and Polylines** is active. Select the first entity or switch the mode with **e**. Enter **r** to change the Radius.

Select Entity or [Lines and Polylines, Radius]: The Mode **Entire Polyline** is active. Select a polyline to finish the command or to switch the mode with **l**. Enter **r** to change the Radius.

Select second entity or [Entire Polyline, Radius] The Mode **Lines and Polylines** is active. Select the second entity to finish the command or switch the mode with **e**. Enter **r** to change the Radius

Specify Radius <Value>: Review or modify the value of the Radius You can enter the value directly or measure it from the drawing.

Ignore parallel Lines [on/off] (context menu)

If **off**, parallel Lines will be connect by an arc, independent from the current Radius setting.

Default: **off**

Show Preview [on/off] (context menu)

If **on**, the result will be displayed on mouse move over an entity.

Default: **on**

Cut (only Windows)



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Cut Element**

CMD: **VPCUT ► Select Entities**

Cuts an entity into two new entities.

Select an entity (line, polyline, arc, circle). Specify the cutting point by clicking on the entity or by selecting a reference object.

Break (only Windows)



Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Break Element**

CMD: **VPOBREAK ► Select Entities**

Breaks an entity at two points and remove the section in between.

Select an entity (line, polyline, arc, circle) by clicking it. This first click point also defines the first break point. Specify the next point to break the entity into two and erase the section in between.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Blocks (Windows only)

General Information

In the following sections, the distinction between a **block definition** and a **block** should be well understood:

- A **block definition** defines the geometric structure of a block as well as the number and types of its attributes. A block definition is unique and part of the document, but it is not visible in the displayed drawing.
- A **block** is a reference to a block definition (= the image of a block definition) at a given position. It can be rotated and scaled (isotropic and non-isotropic). Any number of blocks of a block definition can be inserted in a drawing.
- **Blocks** can be composed of vectors and/or raster elements/objects. However, all elements (vectors and raster elements) of a block are referenced as vectors. If an inserted block is rasterized, all block elements will be rasterized.

Selected elements can be combined to a block. Create a new block from previously selected elements by using the **Combine to new Block** command. In addition, you can import block definitions (**Import - DXF/DWG**) that have been created in a CAD system. These block definitions become part of the document and blocks can be placed at any location using **Insert Block**. If you plan to use the block definition(s) for other documents, we recommend to save the block definition(s) to the **prototype drawing**. This way, the block definition becomes available when you use the prototype drawing (**Options ► System Settings ► Tab Files/Paths**).

For preparing a new prototype drawing containing block definitions loaded from external DWG/DXF files just import the file(s) and then save the new drawing in RVD format under a name of your choice. If this file is used as a prototype drawing, the block definitions become permanently available.

To achieve the same effect with block definitions that are created from drawing elements via **Create Block**, delete all drawing elements (raster and vectors including all blocks) and then save the "empty drawing" as described above. If you want to add additional block definitions to an existing prototype drawing, start with the prototype drawing (click on **New**). Then, create or load blocks, erase them, and save the "empty drawing/document" as a new RVD file.

Attributes can be assigned to a block definition. The procedure and functionality are similar to AutoCAD. Assignment of attributes is especially important for the **Symbol Search** function, since replacing the found symbols by a block allows for assigning symbol text strings to attributes.

Create Block



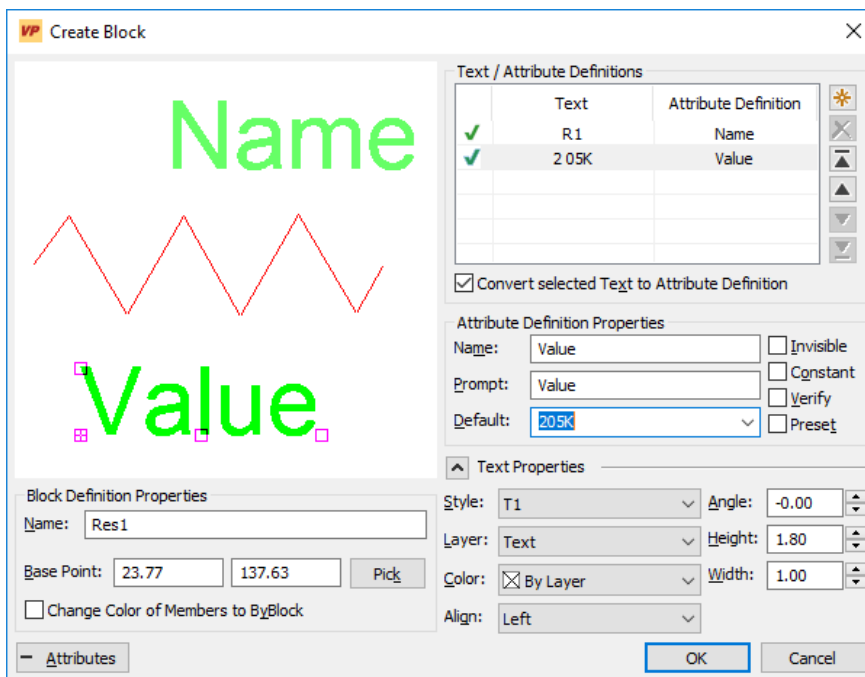
Toolbar: **Block**

Menu: **Vector ► Block ► Create Block**

CMD: **VPMAKEBLOCK ► Select Entities ► Dialog**

CAD: `_block`

Creates a new block definition from the selected elements and inserts a block at the position of the selection. A dialog opens to specify the block definition:



Dialog in advanced display

Block definition Properties

Name

Name of a new block definition. A warning message appears if the name already exists or if the entry is left empty.

Default: **Block001**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Base Point

The insertion point of a new block definition. The default position is the geometric center of all selected elements. With **Pick** you can set the insertion point to a new position by clicking in the drawing.

Change Color of Members to ByBlock

If this parameter is enabled, all elements will be displayed in the color of the inserted block. If switched **off** all members keep their own colors.

Default: **off**

Attributes

Open/Close the dialog with an advanced display for editing attribute definitions (see below).

Text / Attribute Definitions

Attribute definitions can be converted from existing text, or they can be added from scratch. Available text and new attribute definitions are listed in the table's upper right. Text and attribute definition properties of a selected entry will be displayed in the respective fields and can be modified (see below).

Selected attribute definitions or text are highlighted with grips in the preview window. They can be moved, rotated, and scaled in size.


Convert selected Text to Attribute Definition

A green checkmark (✓) indicates a selected text to be converted to an attribute definition. The mark can be set and deleted in different ways:

- Select/De-Select the option **Convert selected Text to Attribute Definition**.
- **Double click** on a text entry.
- **Single click** on the first column (green checkmark) of a text entry.

On creation of a block definition all checkmarked text will be replaced by attribute definitions.

New Attribute Definition

 Inserts a new attribute definition. New attribute definitions will always be checkmarked, A de-selection is not available.

 Deletes a new attribute definition. Text cannot be deleted.

Change Order

    These buttons allow for moving table entries up and down.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Attribute Definition Properties

Active only when a new attribute definition or text to be converted has been selected.

Name A name of an attribute definition may only be used once per block definition. A warning message appears on double naming.

Prompt Is displayed upon block insertion. The name will be displayed when left empty,

Default Preset attribute value upon block insertion. Optional a field function can be selected from a list, which reflect characteristics of the block itself. There are two kinds of field functions:

Prefix @ - Permanent Field Functions: Each time the attributes of the block are displayed (double click or via properties [F3]) the value is recomputed for the current state of the block or drawing. The value cannot be changed.

Sample: The function **@Date** always displays the current date.

Prefix # - Initial Field Function: When the block is inserted the value is preset with the value computed from the current state of the block or drawing. This value is inserted as a normal editable attribute.

Sample: The function **#Date** creates and attribute with the date when the block was inserted. The value can be modified after.

Circumference	Calculates and sets the circumference of the block as attribute value
Area	Calculates and sets the area of the block as attribute value
Angle	Assigns the insertion angle of the block as attribute value
Y-Position	Assigns the y -coordinate as attribute value
X-Position	Assigns the x -coordinate as attribute value
Name	Assigns the name of the block as attribute value
User	Assigns the Windows user name as attribute value
Date	Assigns the current date as attribute value



Some field function are only available in one mode (permanent or temporary).

Mode

Invisible	Attribute will not be displayed in an inserted block
Constant	Attribute value cannot be edited or positioned in a block
Verify	AutoCAD Flag: here, no significance
Preset	AutoCAD Flag: here, no significance

Basic Properties (Text Properties)

You can modify text specific properties of a selected attribute definition or of a selected text:

Textstyle, Layer, Color, Align, Angle, Height, Width.

Combine to (Existing) Block

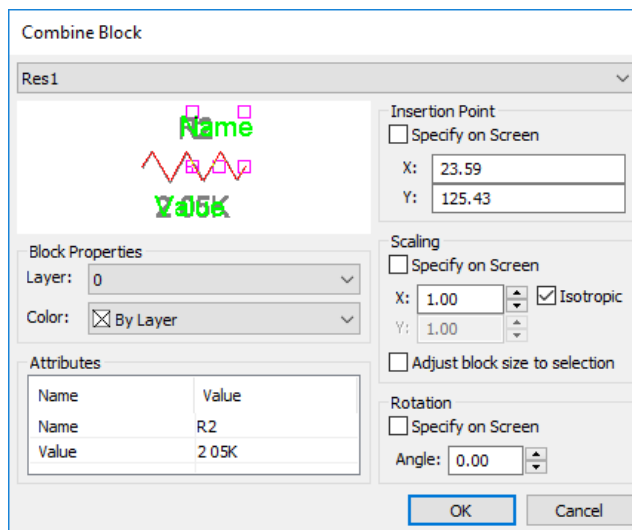


Toolbar: **Block**

Menu: **Vector ► Block ► Combine to Block**

CMD: **VPCOMBINEBLOCK ► Select Entities ► Dialog**

Replaces the selected elements with a block which references a specified, already existing block definition. A dialog opens to specify the block properties.



Selected elements will be grayed in the preview display. See the selected block definition displayed above. With the block definition's grips you can move, rotate, or scale it in size.

Name

Name of the selected block definition. Other block definitions can be selected from a list. The last block definition applied is offered by default.

Attributes

Attribute definitions of the selected block definition. When a selected text element is underlying an attribute definition, this will be assigned as an attribute value. If no text can be assigned the attribute definition's default value will be used. Click on the value for desired changes.

Insertion Point

Insertion point of the new block. The geometric center point of selected elements is offered as default. With **Specify on screen** you can place the new block with the mouse after OK.

Scaling

Scaling of the new block. An **isotropic** scaling of 1.0 is offered as default. With **Specify on screen** you can scale the block with the mouse after OK.

Adjust Block Size to Selection

The block size is adjusted automatically to the overall size of selected elements.

Default: **off**

Rotation

Rotation angle of the new block. 0.0 degrees are offered as default. With **Specify on screen** you can rotate the block with the mouse after OK.

Block Properties

Layer and **Color** of the new block. Currently active settings are offered as default.

Modifying Block definitions (only Windows)

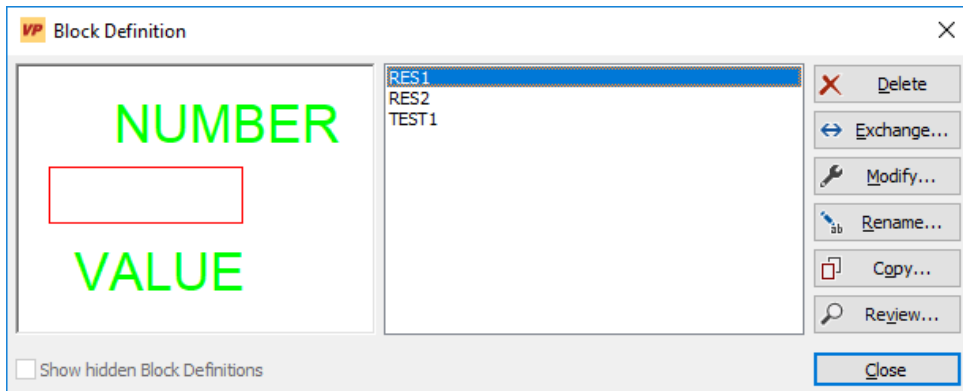


Toolbar: **Block**

Menu: **Vector ► Block definitions**

CMD: **VPSHOWBLOCKDEFS ► Dialog**

Opens a dialog showing all block definitions of the current drawing and provides several functions for modifying one or more selected block definitions.




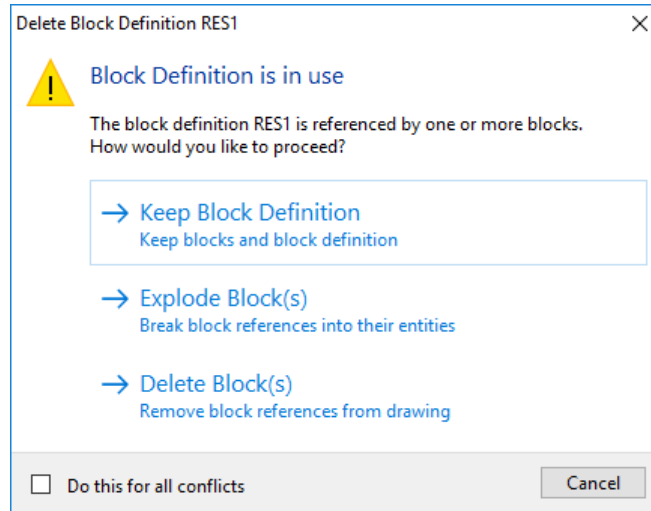
Show hidden Block definitions

Block definitions with a name starting with * (formerly used for hatching, measuring, etc.), will be displayed or hidden.

Default: **off**

Delete

-  Delete the selected block definition(s). If the drawing contains blocks referring to one of the selected block definitions a dialog will appear with options to proceed as required.



Keep block definition: The current block definition will not be deleted. The process continues with the next selected block definition.

Explode Block(s): Referenced blocks will be exploded, i.e. block elements will be inserted in the drawing while the block will be deleted.

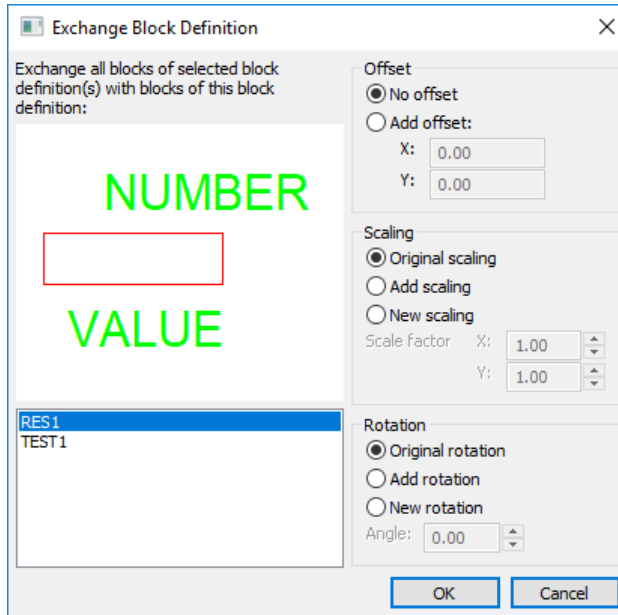
Delete Blocks Referenced blocks will be deleted from the drawing.

Do this for all conflicts: If more than one block definition was selected to be deleted, the selected method to solve the conflict will be used for any further block definition. The dialog will not pop up again.

Cancel The whole process will stop. No further block definitions will be deleted.

Exchange

↔ All blocks of the document referring to this block definition can be changed to another block definition which you can choose in the dialog.



Previous values will be assigned to attributes bearing the same name. All other attributes receive the new definition's default values.

Offset

Moves a block's base point according to the entered value.

Default: **No offset**

Scaling

A new block can be inserted with the original scaling of the former block, or it can be assigned an additional or a new scaling.

Default: **Original scaling**

Rotation

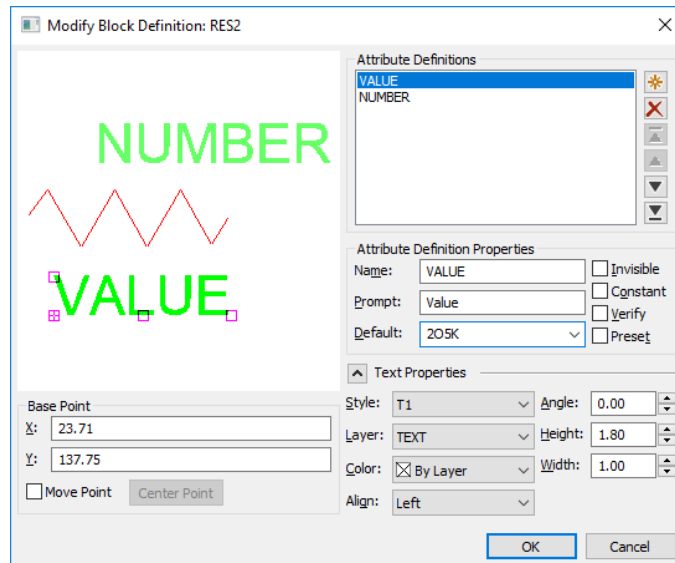
A new block can be inserted with the original rotation of the former block, or it can be assigned an additional or a new rotation.

Default: **Original rotation**

Modify



Applies to a single block definition. Opens a dialog to modify the insertion point and attribute definitions:





Base Point


The coordinates display x/y values which refer to the block definition's geometric center. 0.0/0.0 indicate a base point in the block definition's center point. Values can be modified directly. With the option **Move Base Point** you can move the base point on a grip with the mouse.

Attribute Definitions

Available attribute definitions can be modified or deleted. New attribute definitions can be added.

 **New Attribute Definition** Creates a new attribute definition. If the drawing contains blocks which are referenced with this block definition, new attributes will be added to these blocks, including their default values.

 **Delete Attribute Definition** Deletes the selected attribute definition. If the drawing contains blocks which are referenced with this block definition, the respective attributes will be deleted from these blocks.

 **Change Position** Move a marked entry up/down in the table list.

Attribute Definition Properties

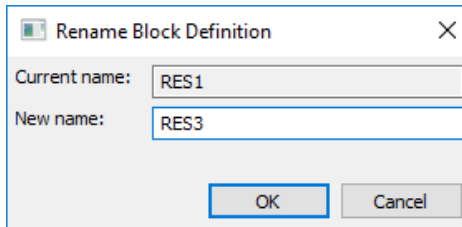
See above: Create Block ► Attribute Definitions ► Attribute Definition Properties.

General Text Properties

You can modify text specific properties of a selected attribute definition or of a selected text:
Textstyle, Layer, Color, Align, Angle, Height, Width.

Rename

 Renames the selected block definition(s):

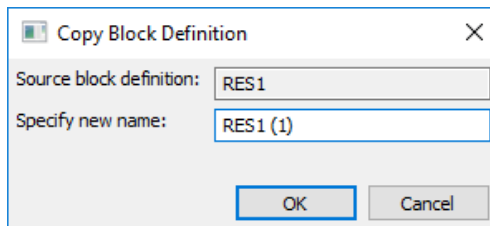


The dialog box titled "Rename Block Definition" has a close button (X) in the top right corner. It contains two text input fields: "Current name:" with the value "RES1" and "New name:" with the value "RES3". At the bottom, there are two buttons: "OK" and "Cancel".

A **New Name** will be assigned on OK. If the name is already in use a respective message appears to enter a unique name.

Copy Block Definition

 Copies a selected block definition:



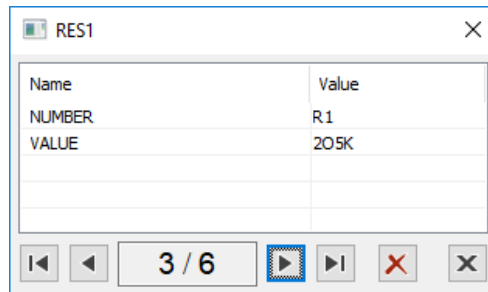
The dialog box titled "Copy Block Definition" has a close button (X) in the top right corner. It contains two text input fields: "Source block definition:" with the value "RES1" and "Specify new name:" with the value "RES1 (1)". At the bottom, there are two buttons: "OK" and "Cancel".

Enter a name for a new block definition. If the name is already used in the current document a message appears to enter new name.

Review



This function allows for checking the attributes of all blocks of the selected block definition. A message appears if the block definition does not contain attribute definitions. The function zooms to the first block of that block definition and opens this dialog:



Use **Previous** and **Next** to go through all blocks. You can modify the currently displayed attributes or **Explode** the block.

Insert Block



Toolbar: **Block**

Menu: **Vector ► Block ► Insert Block**

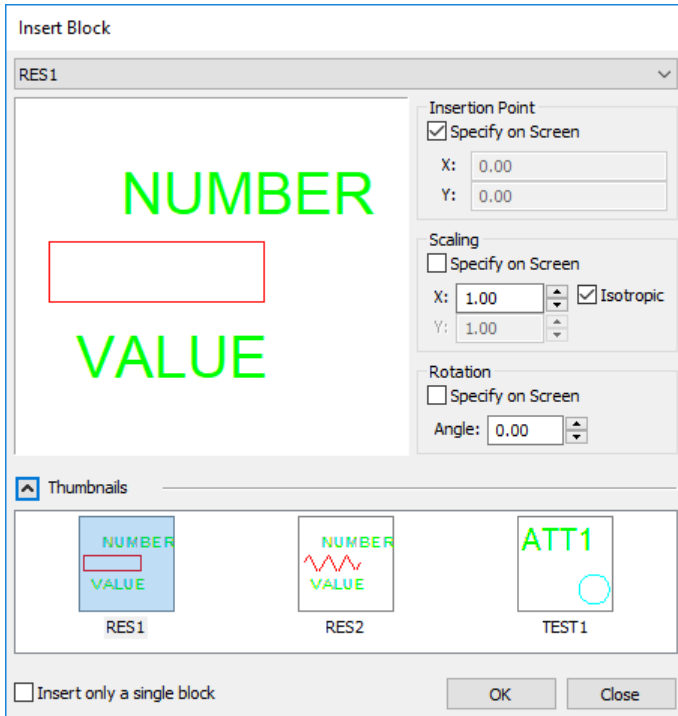
CMD: **VPINSERTBLOCK ► Dialog**

CMD: **VPINSERTBLOCK <Name> <X> <Y> [/xs|xScale <value>] [/ys|yScale <value>] [/a|Angle|phi <value>]**

CAD: **_insert**

Inserts one or multiple block(s). This function is only available if block definitions are contained in the current document.

Dialog **Insert Block** with expanded block preview:



Select a block from the list (**Name**) or click a thumbnail to select from the preview. The selected block will be displayed in the preview.

A block's **Insertion Point**, **Scaling** and **Rotation** can be readily assigned or you can specify settings on screen (**Specify on Screen**).

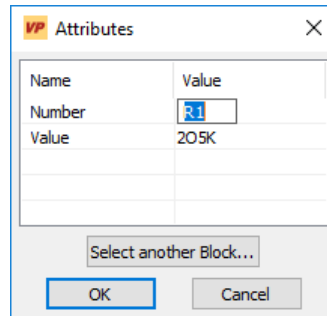
Insert only one block

By default the **Insert Block** command allows to insert multiple blocks. If this option is **on** the command stops after the first insertion is completed. Also if **Specify on Screen** is **off** the command will stop after the insertion is completed.

Default: **off**

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

With **OK** the dialog closes and the block will be inserted. A second dialog will open to enter attribute values if the selected block contains attributes.



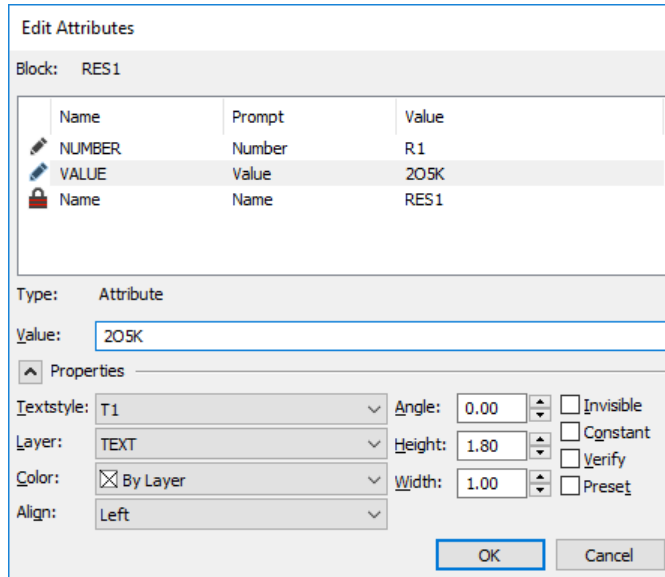
The block will be either inserted at the specified position (=Insertion Point) or - if **Specify on Screen** is **on** - is attached to the cursor for free positioning.

Select another Block (from dialog: Attributes, or from: context menu) will interrupt the repeat mode, and you can select another block for insertion.




Finish the function with **[Esc]**.

Edit Attributes

A double click on a block with attributes will open a dialog for editing:



Block: RES1

Name	Prompt	Value
 NUMBER	Number	R1
 VALUE	Value	205K
 Name	Name	RES1

Type: Attribute

Value:

Properties

Textstyle: T1 Angle: 0.00 Invisible

Layer: TEXT Height: 1.80 Constant

Color: By Layer Width: 1.00 Verify

Align: Left Preset

Editable attributes are marked with a pen icon. You can edit values and properties. Constant attributes are marked with a lock symbol. To edit these values you have to edit the block definition itself. See **Block definition ► Modify....**

Block

Name of the block definition this block is referencing to.

List

Attributes of this block with their **Name**, **Prompt**, and **Value**.

Type

Type of the selected list entry. Either an attribute or an (constant) attribute definition. In the second case all entry fields are grayed out.

Value

Value of the attribute or attribute definition.

Properties

Text properties: Text specific properties of the selected attribute. You can modify the **Text Style**, **Layer**, **Color**, **Alignment**, **Angle**, **Height**, and **Width**.

Attribute properties

Invisible	The attribute will not be displayed.
Constant	The attribute value can neither be edited nor positioned.
Verify	AutoCAD Flag: Here without any meaning
Prompt	AutoCAD Flag: Here without any meaning

Draw Attdef



Toolbar: **Block**

Menu: **Vector ► Block ► Draw Attdef**

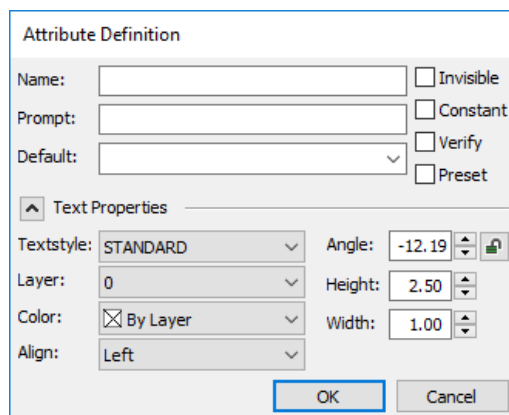
CMD: **VPATTDEF ► Dialog**

CMD: **VPATTDEF <x> <y> <Name> <Prompt> <Default> [/inv <0|1>] [/const <0|1>] [/verify <0|1>] [/preset <0|1>] [/h <height>] [/w2h <width>] [/phi <angle>] [/a <Alignment>]**

CAD: **_attdef**

Adds an attribute definition to the current drawing.

Similar to the **Draw Text** command you have to specify an insertion point and a base line (Except: **Fix Angle**, see below).



Name The name of the attribute definition.

Prompt The display name during the **Insert Block** command. By default this is the **Name**.

Default The pre-set value.

Properties

Invisible	The attribute will not be displayed.
Constant	The attribute value can neither be edited nor positioned.
Verify	AutoCAD Flag: Here without any meaning
Prompt	AutoCAD Flag: Here without any meaning

See also: Create Block ► Attribute Definition ► [Attribute definition properties](#).

Text Properties

Specify text properties. You can set: **Text Style, Layer, Color, Alignment, Angle, Height, and Width.**



Fix Angle {on/off}

If **on** the next attribute definition will use the preset angle. You only have to specify the insertion point.

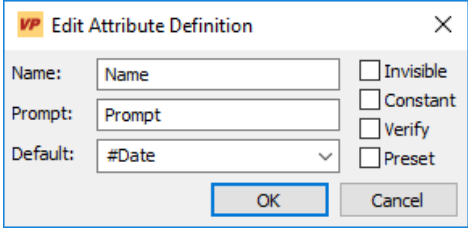
Command line parameters

For all other properties of the attribute definition the active layer, text style, and color is used.

Name	Name
Prompt	Prompt
Default	Default
/inv	Invisible flag (default: 0)
/const	Constant flag (default: 0)
/verify	Verify flag (default: 0)
/preset	Preset flag (default: 0)
/h	Text height (default: Height of the active text style)
/w2h	width-to-height ratio (default: height of the active text style)
/phi	Angle (default: 0.0)
/a	Alignment (default: left)

Edit Attribute Definition

With a double click on an existing attribute definition a dialog pops up to edit the attribute specific properties (see **Draw Attdef**).



For all other properties use the general **Show Properties [F3]** command.

SECTION 9

HYBRID EDITING TOOLS

General Information

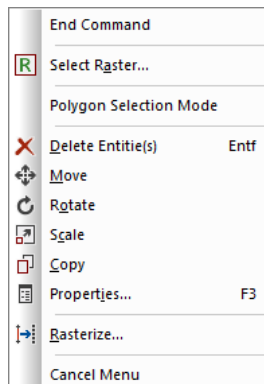
With VP software the formerly sharp line between raster and vector vanishes.

Clicking on (picking) a "line" - regardless if it is a vector or a raster line as part of a raster structure - this "line" is highlighted as an individual entity. It receives grips for moving, copying, rotating, stretching, or whatever is required. In the properties dialog the entity is indicated as a "line", including specific features (layer, color, width).

VP software allows for editing raster and vector entities in the same way. While using the hybrid functions you will almost forget about the difference between the raster and the vector world. Still, there are some differences to note:

- Vector entities are usually drawn with 0.00 width and may receive a width while they are printed/plotted (according to the layer settings "Print"). Raster entities always have a width assigned to them, even a width 0.00 is interpreted as 1 pixel width.
- When you select raster entities (pick, window, or crossing) they are temporarily converted into vectors (having assigned the width of the raster). Later, after finishing an edit command, the entities will be rasterized back into the image.
- If you modify the properties of a "raster" entity it remains a vector with a width assigned. It needs to be rasterized (right mouse menu) if you want it to become a raster entity again. However, you may leave it as a vector anyway.
- If you assign a vector layer to a raster entity (by modifying the properties) it will receive the width of this layer (usually 0.00). It now appears as any other vector entity residing in that vector layer.
- You can mix raster and vector entities/objects in the same layer if you define the layer width "By Entity".
- To rasterize selected vector entities the rasterize settings of the relevant vector layers have to be adjusted.

The standard right mouse menu, containing editing commands offers these functions (the menu structure may vary, depending on which particular functions are currently used):



■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Raster Text



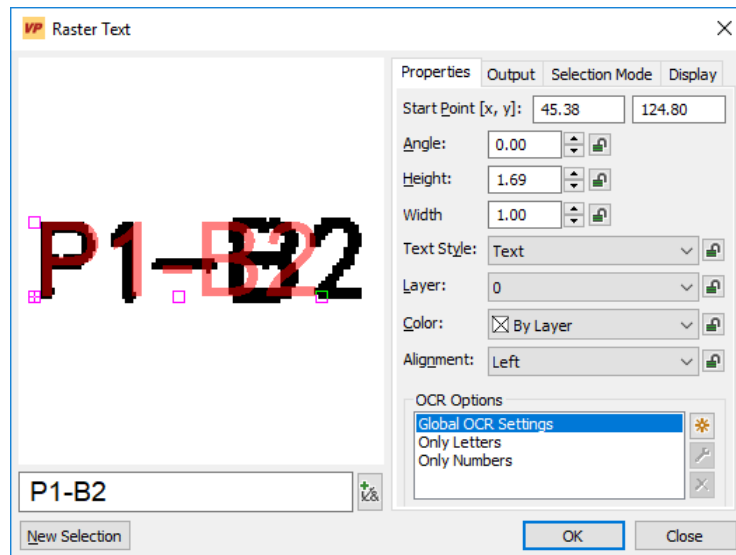
Toolbar: **Select Raster**

Menu: **Edit ► Raster Text**

CMD: **VPRTTEXT ► Dialog**

Provides direct editing of text in raster images.

Text can be selected by rectangle selection (rotated or non-rotated) and is transferred to the OCR (text recognition). A dialog appears displaying the recognized text in a preview window. In the preview window the text can be adjusted (move, rotate, scale) directly according to the raster image. Also, text properties and output mode can be defined.



Recognized text is displayed and can be edited in the **Text** field.



Special characters (if configured) are directly accessible pressing this button or via the keys **[Alt+1]** thru **[Alt+9]** and **[Alt+A]** thru **[Alt+O]**.

Start Point

The text insertion point (lower left corner) in the document.

Angle, Height, Text Style, Layer, Color, Alignment

Options defining text properties.



Lock / unlock Value

Locked values remain unchanged with continuous use of the **Raster Text** function. This will e.g. result in creating text with a uniform height value.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

OCR Options (Text recognition)

Specify the settings for the text recognition. Select from predefined and user defined settings for the recognition (OCR, e.g. only numbers, special characters). New settings are saved and will be available for other projects as well.

Predefined settings are:

Global OCR Settings: The currently specified OCR settings (can be changed with **Options – OCR Settings**, see **Chapter 4**).

Only Letters: All letters, but no numbers (digits) are recognized.

Only Numbers: Only numbers are recognized.

Default: **Global OCR Settings**



New settings . After specifying a name the dialog for the **OCR Settings** will show up.



Modify: Opens the dialog for the **OCR Settings** to modify the selects settings.



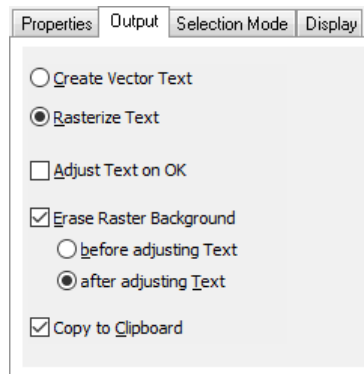
Delete the selected settings.

New Selection

Closes the dialog and cancels the current selection. Use this function to select a new raster text due to a previous wrong selection.

Output Tab

Defining the text insertion mode:



Create Vector Text

New text will be inserted as vector text

Default: **on**

Rasterize Text

New text will be inserted and rasterized.

Default: **on**

Adjust Text on OK

When **on** text will be inserted with grips and can be adjusted (move, rotate, scale). The action terminates with **[Return]** or with a right mouse click and **End Command**. Text will be inserted according to the defined options.

Default: **off**

Erase Raster Background

When **on** the selected raster will be erased **before adjusting text** or **after adjusting text**.

Default: **on, after adjusting text**

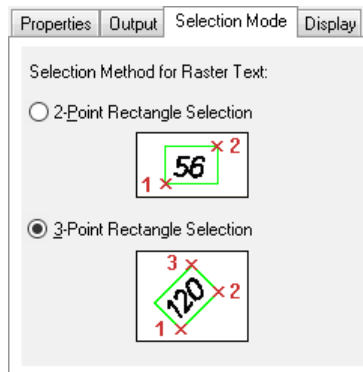
Copy to Clipboard

The text is copied to the clipboard and can be used in other applications.

Default: **on**

Selection Mode Tab

Defining how to select raster text:



2-Point Rectangle

Best for non-rotated text. A rectangle will be drawn with two points (start point, opposite corner). The text angle is 0°.

Default: **off**

3-Point Rectangle

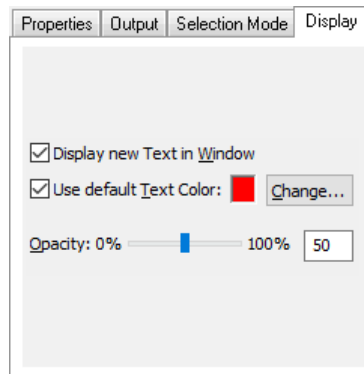
For rotated and non-rotated text. A rectangle will be drawn with three points (start point, angle, and height). Text angle is defined by the rectangle's angle. With holding the **[SHIFT]** key the angle input is limited to steps with 45°; a temporary switch to **2-Point Rectangle** selection is provided with holding the **[CTRL]** key

Default: **on**

Switching between selection modes is provided via the context menu (right mouse).

Display Tab

Defining display options for the preview window:



Display New Text In Window

When **on** the original raster and new text will be displayed in the preview window.

Default: **on**

Use Default Text Color

When **on** new text will be displayed in the default color. Changes to the color with **Change**. When **off** new text will be displayed according to the settings in **Properties**.

Default: **off**

Opacity

Defines the opacity level of new text displayed in the preview window.

Default: **50%**

OK inserts new text according to the selected modes.

Search Raster Symbols



Toolbar: **Select Raster**

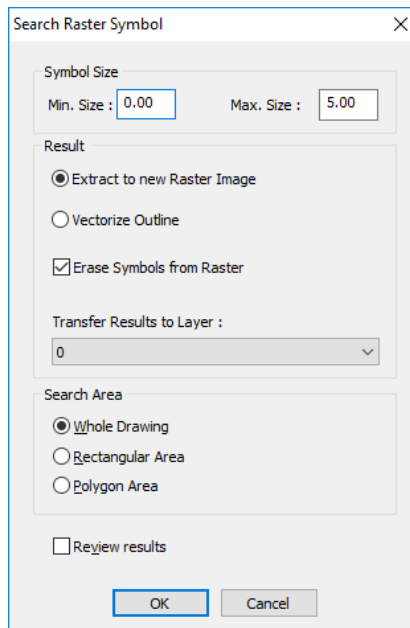
Menu: **Edit ► Raster Symbols**

CMD: **VPRSEARCH ► Dialog**

CMD: **VPRSEARCH <smax> [/smin <SizeMin>] [/m <mode>] [/e <erase>] [/l <layername>]**

Searching for symbols or structures in a raster image defined by their size. Elements detected can be transferred into a new raster image or they can be converted into polylines.

After starting the function without command line parameters the following dialog appears to set up options for Raster Symbol Search:



Symbol Size smax, [/smin]

Defining the search for elements by their **Min. Size** and **Max. Size** in user units.

Default: **0.0 User Units (Min. Size)**
 5.0 User Units (Max. Size)

Extract To New Raster Image [/m 0]

All elements detected will be transferred to a new raster image. The extents of the new image correspond with the size of the original raster image. The new image will be placed on the target layer.

Default: **on**

Vectorize Outline [/m 1]

The contours of each element detected will be converted into polylines. Polylines will be placed on the target layer.

Default: **off**

Erase Symbol From Raster [/e 0|1]

Elements detected will be deleted from the original raster image.

Default: **on**

Transfer Results to Layer [/l]

Target layer for the new raster image or for polylines created.

Default: **Layer 0**

Search Area

Defining the search area in the original raster image. With options **Rectangular Area** and **Polygon Area** the respective area can be defined after **OK**.

Default: **Whole Drawing**

Review Results

When switched **off** all elements detected will be processed immediately (new raster image or conversion into polylines).

When switched **on** all elements detected will appear in a green color display. Elements can be excluded by window selection; they may be included again by holding the **[SHIFT]** key during window selection. Processing continued with **[RETURN]**.

Default: **off**

Command Line Parameters

Required Parameters

<smax> maximum size of raster symbols in user coordinates

Optional Parameters

/smin <value> minimum size of raster symbols in user coordinates, default: 0.0

/m <mode> Mode (0 = extract to new raster image, 1 = vectorize outline), default: 0

/e <erase> Erase symbols from raster (0 = do not erase, 1 = erase), default: 1

/l <layername> Target layer for the new raster image. Default: "0" for mode 1 (vectorize outline), "Raster" for mode 0 (extract to new raster image)

Edit Object(s)

Delete Entities



Toolbar: **Properties/Editing**

Menu: **Edit ► Delete** Function: **Delete Entities**

CMD: **VPDELETE**

CAD: **_erase**

Deletes the selected entities. You can also use **[DEL]** on your keyboard.

Explode Entities (Origin)



Toolbar: **Properties/Editing**

Menu: **Edit** Function: **Explode Entities**

CMD: **VPEXPLODE**

CAD: **_explode**

Breaks up the structure of the selected elements. **Blocks**, **Hatch**, **Polylines**, and **MText** are exploded and separated into their composing base elements. This allows for corrections of misinterpretations resulting from a vectorization.

Move



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Move**

CMD: **VPMOVE** [$\langle x \rangle$ $\langle y \rangle$ [/a] [/bx 0|1|2] [/by 0|1|2]

Moves selected elements to either a specific position (absolute) or by a certain distance (relative). You can also rotate and/or scale the elements during this command.

For coordinate input use either the command line or use the mouse, optional with the snapping methods.

Command line:

x Shift X
y Shift Y
/a Absolute (Default=No) (x and y are absolute coordinates)
/bx <value> Base point X: 0=Left, 1=Center, 2=Right (Default=0)
/by <value> Base point Y: 0=Bottom, 1=Center, 2=Top (Default=0)

Left, center, right and bottom, center, top mean the according values of the active selection set.

Prompts:

Select Entities: If the command was started without a selection, you have to specify which elements you want to move. Use the standard selection methods and confirm with **[Enter]**.

Insert Basepoint or [Relative]: Start point of the displacement line. **[Enter]** selects the center of the current selection as base point. Switch to the **Relative** mode with **r** and **[Enter]**.

Specify second point of displacement or [Move,Scale,Rotate]: The destination coordinates. The base point will be moved to this position, or in **Relative** mode, the selection is moved by this amount of the x and y coordinate. Switch to **Scale** with **s** or to **Rotate** with **r**.

Specify scale factor or [Move,Scale,Rotate]: You are in the **Scale** mode. Either enter a scale factor and confirm with **[Enter]**, or move the mouse to enlarge or reduce the selection. Confirm with a mouse click. The command switches back to the **Move** mode. To switch the mode without any scaling, use **m** for the **Move** mode or **r** for **Rotate**.

Specify rotation angle or [Move, Scale, Rotate]: You are in the **Rotate** mode. Either enter an angle in degrees and confirm with **[Enter]**, or move the mouse to rotate. Confirm with a mouse click. The command switches back to the **Move** mode. To switch the mode without any rotation, use **m** for the **Move** mode or **s** for **Scale**.

You can also switch the mode via context menu. Additional options are:

Show Original Selection

A copy of the selection is displayed at its original position. You can use the object snap methods.

Default: on

Rasterize

The selected elements will be rasterized at their current position into any raster objects beneath. This option is only available if there are any raster objects in the document.

Copy



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Copy**

CMD: **VPCOPY** [<x> <y> [/a] [/bx 0|1|2] [/by 0|1|2]

Copies selected elements to either a specific position (absolute) or by a certain distance (relative). You can also rotate and/or scale the elements during this command.

Command line:

x Shift X
y Shift Y
/a Absolute (Default=No) (x and y are absolute coordinates)
/bx <value> Base point X: 0=Left, 1=Center, 2=Right (Default=0)
/by <value> Base point Y: 0=Bottom, 1=Center, 2=Top (Default=0)

Left, center, right and bottom, center, top mean the according values of the active selection set.

For coordinate input use either the command line or use the mouse, optional with the snapping methods.

Prompts:

Select Entities: If the command was started without a selection, you have to specify which elements you want to copy. Use the standard selection methods and confirm with **[Enter]**.

Insert Basepoint or [Relative]: Start point of the displacement line. **[Enter]** selects the center of the current selection as base point. Switch to the **Relative** mode with **r** and **[Enter]**.

Specify second point of displacement or [Copy,Scale,Rotate]: The destination coordinates. The base point will be moved to this position, or in **Relative** mode, the selection is moved by this amount of the x and y coordinate. Switch to **Scale** with **s** or to **Rotate** with **r**.

Specify scale factor or [Copy,Scale,Rotate]: You are in the **Scale** mode. Either enter a scale factor and confirm with **[Enter]**, or move the mouse to enlarge or reduce the selection. Confirm with a mouse click. The command switches back to the **Copy** mode. To switch the mode without any scaling, use **c** for the **Copy** mode or **r** for **Rotate**.

Specify rotation angle or [Copy, Scale, Rotate]: You are in the **Rotate** mode. Either enter an angle in degrees and confirm with **[Enter]**, or move the mouse to rotate. Confirm with a mouse click. The command switches back to the **Copy** mode. To switch the mode without any rotation, use **c** for the **Copy** mode or **s** for **Scale**.

You can also switch the mode via context menu. Additional options are:

Highlight Original Selection

The selection is highlighted at its original position. You can use the object snap methods.

Default: **on**

Rasterize

The selected elements will be rasterized at their current position into any raster objects beneath. This option is only available if there are any raster objects in the document.

Scale



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Scale**

CMD: **VPSCALEENT** [/sx|ScaleX <ScaleX>] [/sy|ScaleY <ScaleY>]

Enlarges or reduces selected elements (absolute or relative to a reference length).

Command line:

/sx <ScaleX> Scaling in X direction (1.0 is default)

/sy <ScaleY> Scaling in Y direction (1.0 is default)

For coordinate input use either the command line or use the mouse, optional with the snapping methods.

Prompts:

Select Entities: If the command was started without a selection, you have to specify which elements you want to scale. Use the standard selection methods and confirm with **[Enter]**.

Select Basepoint: The base point of the transformation. **[Enter]** selects the center of the current selection as base point.

Specify scale factor or [Copy, Reference]: Enter a scale factor and confirm with **[Enter]**, or move the mouse to enlarge or reduce the selection on screen. Confirm with a click. Just **[Enter]** will use the last entered scale factor, displayed in <.>. To create a **Copy** of the selection enter **c**. Switch to the **Reference** mode with **r**. The scale factor will then be computed out of the specified reference length and a second destination length (see below).

Specify reference length: Either enter a value and confirm with **[Enter]** or specify a length on screen. You can use the last specified value, displayed in <.>, with **[Enter]**.

Specify reference length: Specify second point: On screen mode. Finalize the reference length by a the second point.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Specify new Length or [Points]: Either enter a new destination length, or enter **p** to specify the new length with a two-point line on screen. You can use the last specified value, displayed in <.>, with **[Enter]**.

Specify new Length: Specify first point: First point of destination length.

Specify new Length: Specify second point: Second point of destination length.

You can also switch the mode via context menu. Additional options are:

Highlight Original Selection

The selection is highlighted at its original position. You can use the object snap methods.

Default: **on**

Rasterize

The selected elements will be rasterized at their current position into any raster objects beneath. This option is only available if there are any raster objects in the document.

Rotate



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Rotate**

CMD: **VPROTATEENT** <Angle>

Rotates the selected elements around a base point (absolute or relative).

Command line:

<Angle> Rotation angle

For coordinate input use either the command line or use the mouse, optional with the snapping methods.

Prompts:

Select Entities: If the command was started without a selection, you have to specify which elements you want to rotate. Use the standard selection methods and confirm with **[Enter]**.

Select Basepoint: The base point of the transformation. **[Enter]** selects the center of the current selection as base point.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Specify rotation angle or [Copy, Reference]: Enter a rotation angle and confirm with **[Enter]**, or move the mouse to rotate the selection on screen. Confirm with a mouse click. Just **[Enter]** will use the last entered rotation angle, displayed in <.>. To create a **Copy** of the selection enter **c**. Switch to the **Reference** mode with **r**. The rotation angle will then be computed out of the specified reference angle and a second destination angle (see below).

Specify reference angle: Either enter a value and confirm with **[Enter]** or specify an angle on screen. You can use the last specified value, displayed in <.>, with **[Enter]**.

Specify reference angle: Specify second point: On screen mode. Finalize the reference angle by a the second point.

Specify new angle or [Points]: Either enter a new destination angle, or enter **p** to specify the new angle with a two-point line on screen. You can use the last specified value, displayed in <.>, with **[Enter]**.

Specify new angle: Specify first point: First point of destination angle.

Specify new angle: Specify second point: Second point of destination angle.

You can also switch the mode via context menu. Additional options are:

Show Original Selection

A copy of the selection is displayed at its original position. You can use the object snap methods.

Default: **on**

Rasterize

The selected elements will be rasterized at their current position into any raster objects beneath. This option is only available if there are any raster objects in the document.

Mirror



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Mirror**

CMD: **VPMIRRORENT**

Mirrors the selected elements at a mirror axis. For better point input use the snap methods.

Prompts:

Select Entities: If the command was started without a selection, you have to specify which elements you want to mirror. Use the standard selection methods and confirm with **[Enter]**.

Draw mirror line [Select line to mirror on (s)]: Specify the first point of the desired mirror line. Use **s** to switch to a selection mode.

Second point of mirror axis: Specify the second point of the desired mirror axis. Use **s** to switch to a selection mode.

Select line to mirror on [Draw mirror line (d)]: Pick a vector line as mirror axis. Use **d** to switch to the draw mode.

Erase source objects [Yes/No]: Type **y** to erase the original selection, **n** keeps it. Default is **n**.

You can also switch the mode via context menu. Additional options are:

Highlight Original Selection

The selection is highlighted at its original position. You can use the object snap methods.

Default: **on**

Array



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Array**

CMD: **VPARRAYENT**

This function allows a multiple copy and positioning of raster and/or vector entities in a rectangular or circular order.

Activate this function and select the entities/objects you want to array. Confirm the selection with **[Return]**. You may also select the entities/objects first and then call the function. For raster selection, use the function **Select Raster** from the context menu (right mouse click).

A dialog pops up for specifying the array structure:

Rectangle

The selected entities will be arranged on a rectangular grid.

Row

Specify the number of **rows** and the **Offset** between each array entity.

Default: 1
Default Value: 1.0 [mm]

Column

Specify the number of **columns** and the **Offset** between each array entity.

Default: 1
Default Value: 1.0 [mm]

Orientation

Choose between:

- upwards to the left
- downwards to the left
- upwards to the right
- downwards to the right

Default: **upwards to the left**

Angle of Array

The angular orientation of the array (not the array entities!) to the grid.

Default: **0.0°**

Polar

The selected entities will be arranged along an imaginary circle.

Center Point

The center point of the imaginary circle.

Total number of objects

The number of additional entities (plus one for the original selection) to be arranged.

Default: **1**

Angle to fill

Specify the angle of the imaginary circle. Entities will be positioned alongside accordingly.

Default: **360° (full circle)**

Arrange objects with rotation {on/off}

The copied objects will be rotated around their center point according to their position on the imaginary circle.

Default: **on**

Offset



Toolbar: **Properties/Editing**

Menu: **Edit ► Edit Object(s)** Function: **Offset**

CMD: **VPOFFSETENT**

Copies selected entities and adds them parallel (lines, raster) or concentric (arcs, circles, and ellipses) to the original entities.

Prompts:

Select Entities: If the command was started without a selection, you have to specify which elements you want to offset. Use the standard selection methods and confirm with **[Enter]**.

Specify offset distance: Specify the distance (by value or by drawing a line on screen) to the existing elements.

Second Point: Second point of line, which defines the distance.

Insert Point: Specify the side on which the new elements should be inserted.

You can also switch the mode via context menu. Additional options are:

Highlight Original Selection

The selection is highlighted at its original position. You can use the object snap methods.

Default: **on**

Combining Elements

These functions allow you to combine selected entities (raster or vector) to form a complete, or even a new entity. These functions can be applied to raster or vector entities particularly generated by the vectorization process, as well as to manually drawn entities.

In this sense, "to combine" means to group entities, for example, two or more lines segments to form a **single** line or a complete **single** arc. Due to a poor original or inaccurate drawing, the vectorization process may often result in broken lines, several arcs fractions instead of a circle, etc. Using the **Combine to** commands, clean-up can be accomplished easily, quickly and at high precision.

If several entities are combined to create a new entity, the new entity is calculated according to the method of the least square error. For example, the outer end points of two lines being joined are not necessarily identical to the endpoints of the new line.

If entities with differing properties (e.g. layer or line type) are combined, the properties of the resulting object are determined by the dominant (i.e. largest) entity.

There are two basic methods for combining entities:

- Select the entities first, then click on the function icon (**single call**).
- Select the function by clicking on the icon, then select the entities and complete the function by pressing **[Enter]**. The function remains active for subsequent operations (**multiple call**).

Combine to Line



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Line**

CMD: **VPCOMBINETOLINE ► Select Entities**

Combines the selected entities to a single line. The angle of the resulting line is the mean angle of the combined entities. Arcs can be combined to lines as well.

Combine to Orthogonal Line



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Orthogonal Line**

CMD: **VPCOMBINETOORTHOLINE ► Select Entities**

Combines the selected entities to an orthogonal line. This function can be used to deskew individual and non-orthogonal lines.

Combine to Polyline



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Polyline**

CMD: **VPCOMBINETOPOLYLINE ► Select Entities**

Combines the selected entities to a polyline. Use this command to combine individual polyline segments (e.g. on a map) to a single polyline.

Combine to Closed Polyline



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Closed Polyline**

CMD: **VPCOMBINETOCLOSEDPOLYLINE ► Select Polyline**

Combines the selected entities to a closed polyline or closes a selected polyline.

Combine to MPolyline



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► MPolyline**

CMD: **VPCOMBINETOMPOLYLINE ► Select Elements**

Links selected elements to a multi-polyline. Other elements than lines will be exploded in raw vectors first. The command allows for combining single polyline fragments (e.g. in maps) to a multi-polyline.

Combine to Closed MPolyline



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Closed MPolyline**

CMD: **VPCOMBINETOCLOSEDMPOLYLINE ► Select Elements**

Links selected elements to a closed multi-polyline or closes a selected multi-polyline.

Combine to Polygon (only Windows)



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Polygon**

CMD: **VPCOMBINETOPOLYGON ► Select Entities**

Combines the selected entities to a polygon. Use this command to combine individual polygon entities (e.g. on a map) to a single polygon.

Combine to Spline



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Spline**

CMD: **VPCOMBINETOSPLINE ► Select Entities**

Combines the selected entities to a B-spline.

Combine to Closed Spline



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Closed Spline**

CMD: **VPCOMBINETOCLOSEDSPLINE ► Select Entities**

Combines the selected entities to a closed B-spline or closes a selected spline.

Combine to Arc



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Arc**

CMD: **VPCOMBINETOARC ► Select Entities**

Combines selected entities to an arc.

Combine to Circle



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Circle**

CMD: **VPCOMBINETOCIRCLE ► Select Entities**

Combines selected entities to a circle.

Combine to Ellipse



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Ellipse**

CMD: **VPCOMBINETOELLIPSE ► Select Entities**

Combines selected entities to an ellipse.

Combine to Elliptical Arc



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Elliptical Arc**

CMD: **VPCOMBINETOELLIPTICALARC ► Select Entities**

Combines selected entities to a partial ellipse.

Combine to Text (Interactive Text Recognition)

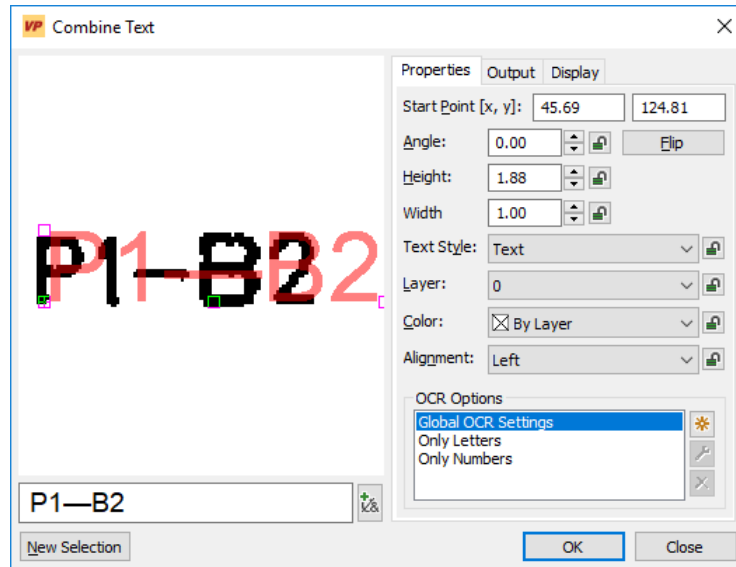


Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Text**

CMD: **VPCOMBINETOTEXT ► Select Entities ► Dialog**

Processing selected raster or vector elements with text recognition. A dialog appears displaying the recognized text in a preview window. In the preview window the text can be adjusted (move, rotate, scale) directly according to the raster image. Also, text properties and output mode can be defined.



Recognized text is displayed and can be edited in the **Text** field.

Start Point

The text insertion point (lower left corner) in the document.

Angle, Height, Text Style, Layer, Color, Alignment

Options defining text properties.



Lock / unlock Value

Locked values remain unchanged with continuous use of the **Combine to Text** function. This will e.g. result in creating text with a uniform height value.

Flip

Rotates the selection by 180° and starts recognition process again.

OCR Options (Text recognition)

Specify the settings for the text recognition. Select from predefined and user defined settings for the recognition (OCR, e.g. only numbers, special characters). New settings are saved and will be available for other projects as well.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		

Predefined settings are:

Global OCR Settings: The currently specified OCR settings (can be changed with **Options – OCR Settings**, see **Chapter 4**).

Only Letters: All letters, but no numbers (digits) are recognized.

Only Numbers: Only numbers are recognized.

Default: **Global OCR Settings**



New settings . After specifying a name the dialog for the **OCR Settings** will show up.



Modify: Opens the dialog for the **OCR Settings** to modify the selects settings.



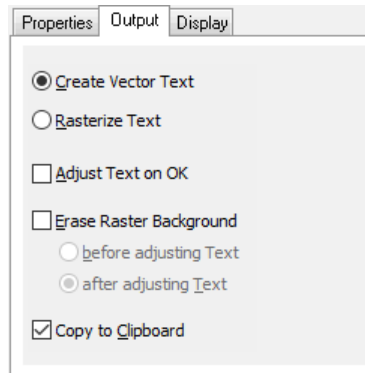
Delete the selected settings.

New Selection

Closes the dialog and cancels the current selection. Use this function to select a new raster or vector text due to a previous wrong selection.

Output Tab

Defining the text insertion mode:



Create Vector Text

The new text will be inserted as vector text.

Default: **on**

Rasterize Text

New text will be inserted and rasterized.

Default: **on**



Adjust Text on OK

When **on** text will be inserted with grips and can be adjusted (move, rotate, scale). The action terminates with **[Return]** or with a right mouse click and **End Command**. Text will be inserted according to the defined options.

Default: **off**

Erase Raster Background

When **on** the selected raster will be erased **before adjusting text** or **after adjusting text**.

Default: **on, after adjusting text**

Copy to Clipboard

The text is copied to the clipboard and can be used in other applications.

Default: **on**

For **Display Tab** see **Raster Text** above in this section.

OK inserts new text and deletes the original selection.

Combine to MText (Multiline Text Recognition)

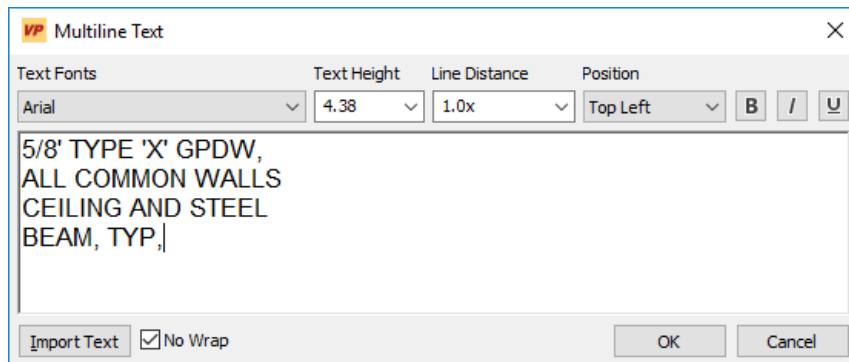


Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Multiline Text**

CMD: **VPCOMBINETOMTEXT ► Select Entities ► Dialog**

Transfers selected entities to the multiline text recognition routine. If raster and vectors are selected together, then only the vectors are processed. The multiline text editor dialog appears, displaying the recognized text strings for formatting:



Text Fonts

All available system fonts can be selected and assigned to the text string or to portions of it.

Text Height

Applies the entered height to the marked text strings.

Line Distance

Defines the spacing between text lines with reference to the standard line distance.

Position

With reference to the specified text area (rectangle) you have multiple choices to position the multi line text.

Bold, Italic, Underline

These options allow for modifying the selected font.

Import Text

Allows to import text from a file.

Combine to Hatch



Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Hatch**

CMD: **VPCOMBINETOHATCH ► Select Entities**

The selected line entities are combined to form a hatch.

You can add additional lines to a hatch by selecting these lines and the hatch and then activate this function again.

Combine Options



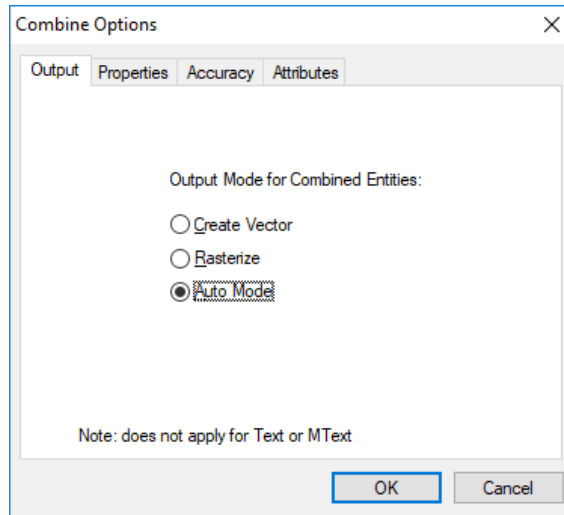
Toolbar: **Combine to**

Menu: **Vector ► Combine to ► Settings**

CMD: **VPCOMBINESETTINGS ► Dialog**

Options to set up selection and input modes for all **Combine To** functions.

Output Tab



Defining how combined elements will be inserted.

Create Vectors

Combined elements will be inserted as vectors.

Rasterize

Combined elements will be rasterized directly.

Auto Mode

Insertion mode depends on the selection.

Only raster elements selected:

elements will be **rasterized**.

Vector(s) included in selection:

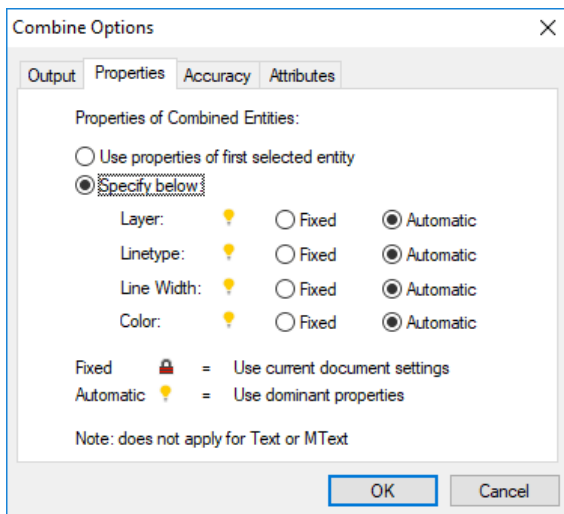
elements will be inserted as **vectors**.

Default: **Auto Mode**



These options do **not** apply to functions **Combine to Text** and **Combine to MText**.

Properties Tab



Defining properties of combined elements (layer, color, etc.). These options refer to inserted vector elements only.

Use Properties of first selected entity

The new element receives the same properties as the first selected element. Use this function to add several elements to a main element without changing its properties.

Fixed

Independent from the selection. Current property settings in the document apply to combined elements.

Automatic

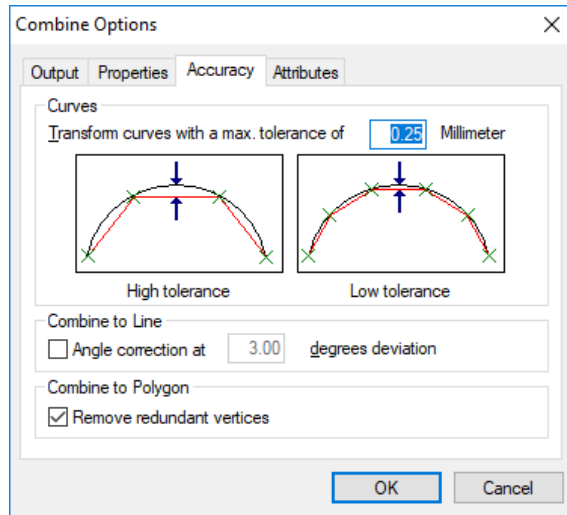
Depending on selection. Properties of the dominant element in the selection (i.e. the largest or longest element) will apply to the new element.

Standard: **Automatic for all**



These options do **not** apply to functions **Combine to Text** and **Combine to MText**.

Accuracy Tab



Curves

Circle, arcs, splines, and ellipses will be exploded into short line segments. These will form the new combined element. **Tolerance** refers to the maximum distance of the line segments to the original curve.

Lower tolerance values will result in an increased accuracy, however, will also create more data.

Default: 1.00 User Units

Angle Correction

Applies to function **Combine to Line**. The option will correct angle positions of lines to 0° or 90° when a maximum deviation is defined for this correction.

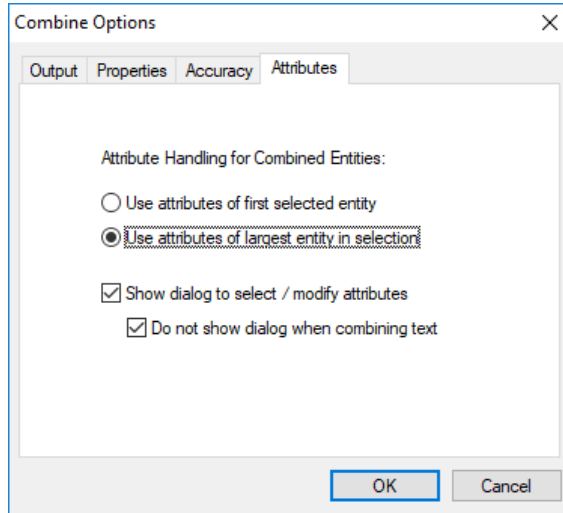
Default: off

Remove redundant vertices

Refers to function **Combine to Polygon**. Vertices of overlaying (double or multi) line segments will be deleted.

Default: on

Attributes Tab

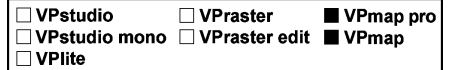


Here you can specify which attributes a new entity will receive from an entity in the selection. You can use attributes from the **first**, or **biggest**, or **longest** entity.

Show dialog to select / modify attributes

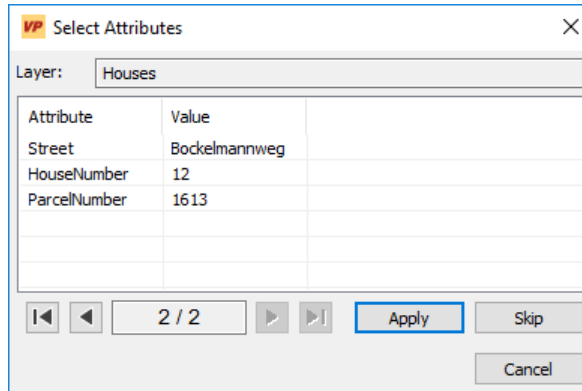
A dialog appears during combine operations offering attributes of all selected entities. Default is set to the first or to the biggest entity (according to the selection).

Default: **on**



Select Attributes

Depending on the combine-to settings (see [Attributes Tab](#)) this dialog appears when entities are going to be combined:



Attributes of all selected entities are offered. Default is set to the first or to the biggest entity.

Apply

Selected attributes are assigned to the new entity.

Skip

The new entity will be created without attributes.

Cancel

The function will be terminated.

Adjust Text

These functions allow you to align and/or adjust height, angle, and line space of text entities. Other text properties, such as text style, layer, or color remain unchanged.

The functions can be used in two operation modes:

- Select text entities first, then execute a command, or
- Select the command first, then select text entities.



Only single line text can be edited. Multiline text or other entities will be ignored.

Align Left



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Align Left**

CMD: **VPADJUSTLEFT ► Select Entities**

Specify a point (on-screen or in the command line) to define the X-value the text shall be **left aligned** to. The Y-value, height, and angle of the text remain unchanged.

Align Right



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Align Right**

CMD: **VPADJUSTRIGHT ► Select Entities**

Specify a point (on-screen or in the command line) to define the Y-value the text shall be **left aligned** to. The X-value, height, and angle of the text remain unchanged.

Center Horizontally



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Center Horizontal**

CMD: **VPADJUSTXCENTER ► Select Entities**

Specify a point (on-screen or in the command line) to define the X-value the text shall be **centered** (=half of the text width) to. The Y-value, height, and angle of the text remain unchanged.

Align Top



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Align Top**

CMD: **VPADJUSTTOP ► Select Entities**

Specify a point (on-screen or in the command line) to define the Y-value the text shall be aligned to at the **upper** edge(s). The X-value, height, and angle of the text remain unchanged.

Align Bottom



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Align Bottom**

CMD: **VPADJUSTBOTTOM ► Select Entities**

Specify a point (on-screen or in the command line) to define the Y-value the text shall be aligned to at the **lower** edge(s). The X-value, height, and angle of the text remain unchanged.

Center Vertical



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Center Vertical**

CMD: **VPADJUSTYCENTER ► Select Entities**

Specify a point (on-screen or in the command line) to define the Y-value the text will be **centered** (=half of the text height) to. The X-value, height, and angle of the text remain unchanged.

Align with Line Space

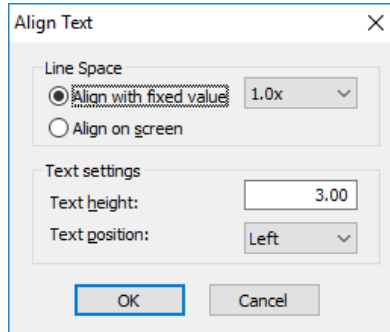


Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Align with Line Space**

CMD: **VPADJUSTLINESPACE ► Select Entities**

After text selection the following dialog opens:



Line Space

Enter a **fixed value** (0.5 up to 4 times the text height), or select **Align on screen** to adjust text interactively (see below) after the dialog closes.

Default: **Align with fixed value**
Value: **1.0x**

Text settings

Specify the desired uniform **Text height** and a mutual alignment (left, right or centered).

Default: **3 [mm], Left**

After confirmation of the values with **OK** a grip is shown near the top text for group positioning. If **Align on screen** was selected the line space can be adjusted with a second grip near the bottom text.

The modifications are accepted with **[Enter]** or selecting **Enter** from the context menu. Discard the changes with **[ESC]** or select **Cancel** from the context menu.

Assign Same Height



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Assign Same Height**

CMD: **VPADJUSTHEIGHT ► Select Entities**

Specify the new text height for all selected text entities. The height can be entered in the command line or it can be specified by drawing a reference line on-screen.

Assign Same Angle



Toolbar: **Adjust Text**

Menu: **Vector ► Adjust Text ► Assign Same Angle**

CMD: **VPADJUSTANGLE ► Select Entities**

Specify the new angle for all selected text entities. The angle can be entered in the command line or it can be specified by drawing a reference line on screen.

Special Tools

Review Text



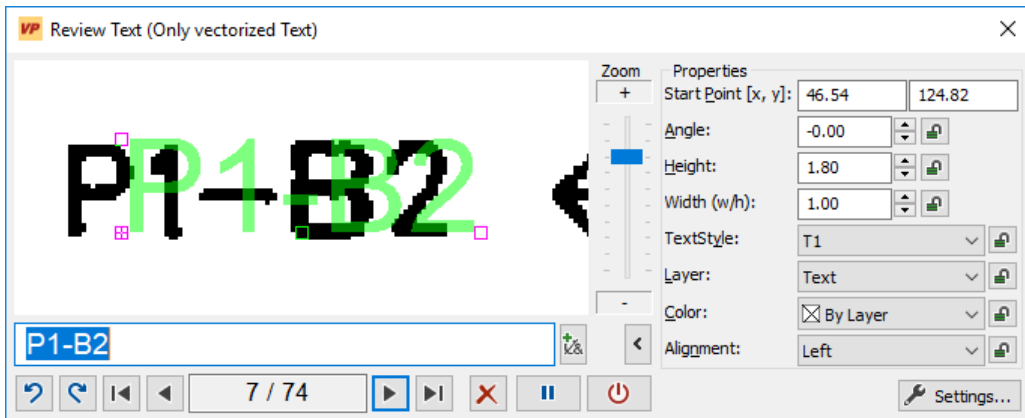
Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Review Text**

CMD: **VPREVIEWTEXT ► Dialog**

Allows for reviewing and editing of text in a drawing or from a selection. You can review vectorized text and manually entered text.

Dialog **Text Review** with expanded **Properties** bar:



Current text will be displayed in the preview window along with the underlying raster, if any. Text can be moved, rotated, and scaled in size in the preview window..


The current text will be zoomed in the drawing. The zoom factor depends on the size of the text. From this value, choose **Zoom** to increase/decrease this factor: For vectorized text the assembled vectors will be displayed, instead of the actual text.


When reviewing vectorized text all those vector entities to be replaced by the ASCII text can be included by selecting those entities. If you've selected an entity by mistake, deselect it with **[Shift]** and click on the highlighted entity(s). On occasion, you may want to explode a text back into the vector entities, since the interpretation could be wrong: simply delete the text and press **OK** to restore the original vector(s). This is another way of exploding.


■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		


In the dialog you can change all text properties and edit the text directly (using the keyboard). Using the **Shortcuts** button, you can enter special characters or text strings.


 Undo/Redo last changes.


 Jump to first/previous text.


 Indicates which text is reviewed in the current sequence.


 Jump to following/last text

 Deletes current text. Original vectors will be restored with vectorized text.

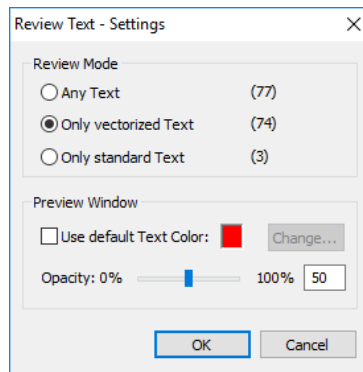
 **Pause:** Review will be interrupted and dialog is closed. All modifications are saved. Pressing again will continue the review run at the current text position.

 **Close:** Review will be closed. All modifications are saved. Using **Review Text** function again will continue the review run at the current text position.

 Displays/closes the properties bar.

 **Lock / unlock values:** Locked values remain unchanged for following text. This will e.g. result in creating text with a uniform height value.

Review Text - Settings



Review Mode

You can specify which kind of text will be reviewed. Change the mode when a warning message appears.

Default: **Review all Text**

Preview Window

Set color and transparency for the preview display.

Vector Cleanup



Toolbar: **Regeneration**

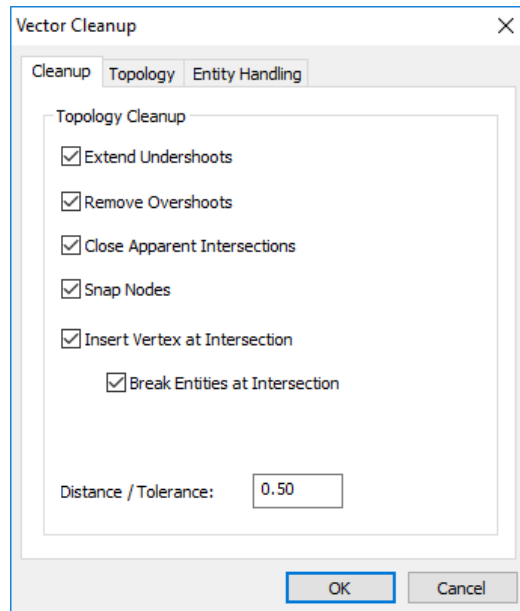
Menu: **Vectorize ► Vector Cleanup**

CMD: **VPVECCLEAN**

With this function topology errors in vector data can be corrected, such as overlaps (overshoots) and gaps (undershoots). Also, short, separated elements can be eliminated. Moreover, joined lines can be combined to polylines, closed areas can be combined to polygons.

The function will only be useful for lines and polylines. All other elements will either be ignored or will be converted to polylines (see Options).

Cleanup Tab



Extend Undershoots

Gaps resulting from too short vectors will be closed.

Remove Overshoots

Overlaps resulting from too long vectors will be eliminated.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Close Apparent Intersections

Gaps between two lines and/or polylines will be closed. The virtual intersection of both line segments must match the tolerance value.

Snap Nodes

Nodes that are close to each other will be joined.

Insert Vertex at Intersection

A vertex will be inserted at intersecting lines or intersecting polylines.

Break Elements at Intersection

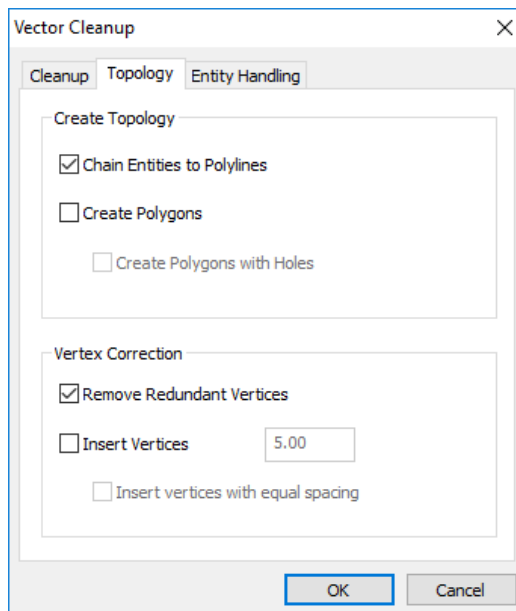
Results in an element break if the element (a line or a polyline) is intersected at any position.

Distance / Tolerance:

Maximum distance for undershoots, overshoots, apparent intersections, or between nodes to be cleaned.

Default: 0.5 User Units

Topology Tab



<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Chain Entities to Polylines

After cleanup, joined lines or polylines will be chained to polylines which end with a node or have open endings.

Create Polygons

Areas closed by lines or polylines will be replaced with polygons residing in the active layer. Lines/polylines of the outline will be kept. If several polygons are overlaying each other you can combine them to one coherent polygon (**Create polygons with holes**). Polygons which lie completely inside a bigger polygon will be converted to holes.

Remove Redundant Vertices

Vertices on straight line/polyline segments will be deleted.

Insert Vertices

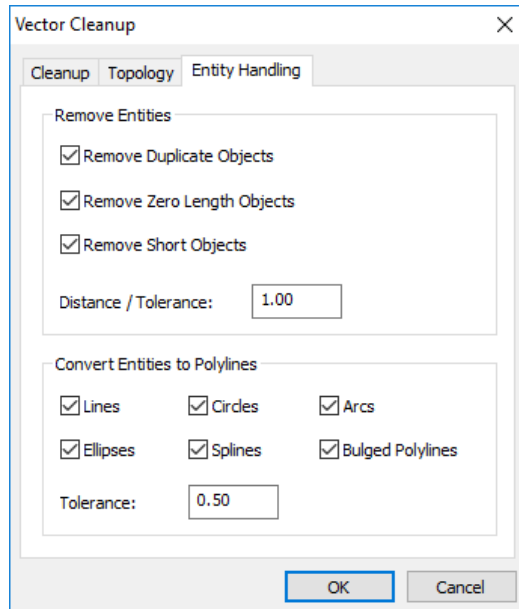
Additional vertices will be inserted to line segments. Lines will be split into segments not longer than the entered value.

Default: 5.0 User Units

Insert vertices with equal spacing

Adds vertices to a segment with an equal distance.

Entity Handling Tab



<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Remove Duplicate Objects

Duplicate (overlying) elements will be deleted. The **Distance / Tolerance** value controls how close elements need to be overlaying each other.

Remove Zero Length Objects

Lines and 2-point polylines with equal start and end points will be deleted.

Short Objects

Elements shorter than **Distance / Tolerance** will be deleted. They need to have at least one open ending.

Distance / Tolerance:

Maximum distance (in user units) for removing duplicate elements. Maximum length (in user units) for removing short objects.

Default: 1.0 User Units

Convert Entities to Polylines

Elements, such as **Lines, Circles, Arcs, Ellipses, Splines** and **Bulged Polylines** will be considered for a cleanup process (e.g. calculation of intersections). They will, however, not be modified. To entirely include these elements in a cleanup process they need to be converted to polylines. The selected element types will be converted to polylines according to the current **Tolerance** value (in user units).

Default: 0.5 User Units

Regenerate



Toolbar: **Regeneration**

Menu: **Vectorize ► Regenerate**

CMD: **VPREGENERATE**

Applies to all or currently selected closed polygons and closed polylines. Generates gapless and none-overlapping adjoining areas. Use this function to process traced or vectorized polygons/polylines with the settings defined in **Regenerate Settings**.

Regenerate Settings

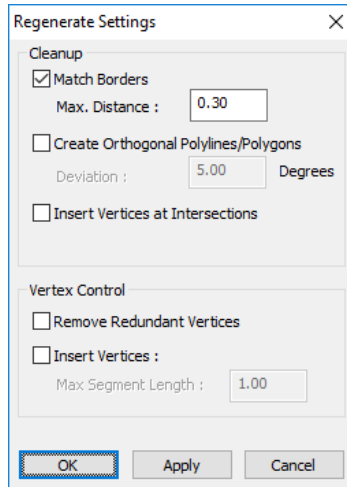


Toolbar: **Regeneration**

Menu: **Vectorize ► Regenerate Settings**

CMD: **VPREGENERATESETTINGS ► Dialog**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		



Match Borders

The polygons/polylines will be re-calculated according to their neighborhood distance at any one vertex to the closest vertex of other polygons/polylines. This ensures that contours of neighboring entities will not have gaps in between. A vertex with a greater distance to a neighboring vertex than **Max. Distance** will not be re-adjusted.

Default Value: **0.3 [mm]**



A good value for the distance of two vertices that should be combined is the width of the original raster borderline.

Create Orthogonal Polylines/Polygons

Within the value for **Deviation** the line segments of polygons/polylines will be aligned orthogonally to each other.

Default Value: **5.0 [Degrees]**

Insert Vertices at Intersections

Create additional vertices at the intersections of polygons/polylines.

Remove Redundant Vertices

Vertices lying on straight line segments are removed from polygons/polylines.

Insert Vertices

Line segments will be subdivided to **Max. Segment Length** by insertion of additional vertices.

Default Value: **1.0 [mm]**

OK


Settings will be adopted and the dialog closes.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Apply

Settings will be adopted and the dialog closes. **Regenerate** will start.

Text to Attribute Conversion



Toolbar: **Regeneration**

Menu: **Vectorize ► Text to Attributes**

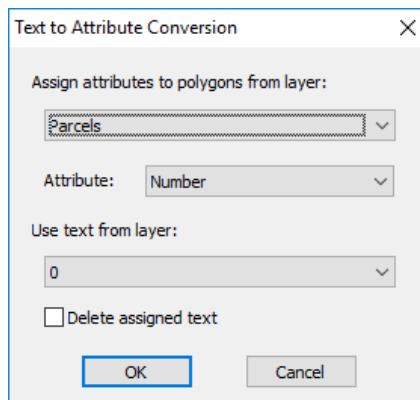
CMD: **VPTEXTTOATTRIB** /l <Layer> /a <Attribute> /t <Text> [/d]

Converts text inside of polygons to attributes and assigns them to the polygon elements. Thus, the drawing must contain Attribute Definitions.

Command line:

/l <Layer> Assign attributes to polygons from this layer
 /a <Attribute> Attribute Definition to use
 /t <Text> Use text from this layer
 /d Delete assigned text (default: no)

If no command line is specified this dialog pops up:



Assign attributes to polygons from layer

Specifies the polygons' layer attributes will be assigned to. Only layers with Attribute Definitions can be selected.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Attribute

An Attribute Definition of the polygon layer. Text will be converted according to this Attribute Definition.

Use text from layer

Specifies the layer of text elements. Residing text will be converted to attributes.

Delete assigned text

When switched **on** all treated text will be deleted after the conversion.

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Transform



Toolbar: **Transform**

Menu: **Vector ► Transform to**

CMD: **VPTRANSFORMTO** [/l|Line <value>] [/p|Polyline <value>] [/mp|MPolyline <value>]
 [/s|Spline <value>] [/a|Arc <value>] [/c|Circle <value>] [/ea|Elliptical Arc <value>]
 [/e|Ellipse <value>] [/pn|Polygon <value>] [/pt|Point <value>] [/blk|Block <value>] [/mt|MText]

Use this function to change the type of entities or to adjust lines orthogonally; e.g. convert all selected polylines of a drawing into "splines", or align entities of type "line" vertically and horizontally. You can also convert curved entities (arcs, circles, ellipses, and splines) to a set of lines.

Command line:

```

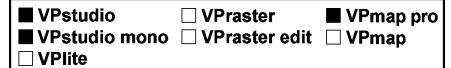
/l <value>      Transform Line
/p <value>      Transform Polyline
/mp <value>     Transform MPolyline
/s <value>      Transform Spline
/a <value>      Transform Arc
/c <value>      Transform Circle
/ea <value>     Transform Elliptical Arc
/e <value>      Transform Ellipse
/pn <value>     Transform Polygon
/pt <value>     Transform Point
/blk <value>    Transform Block
/mt             Transform MText [0|1] to Text
  
```

Other available target types: ol|Ortho Line, ls|Linesegments

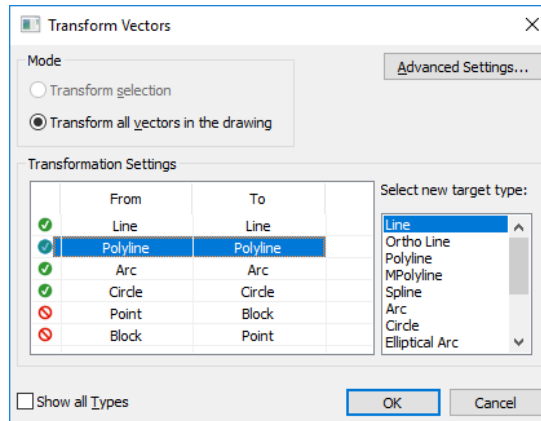
Specify as <value> the desired target entity type E.g. the command

vptransformto /p ls

transforms all polylines to line segments. Not all combinations are valid.



If no command line is specified, a dialog box opens for setting up the parameters:



You can apply the transformation to the currently selected entities or to all vector entities in the drawing by changing the **Mode**.

The **Transformation Settings** show a table with the presently existing entity types in the drawing (**From**) and their target type (**To**) for the transformation. The green **check mark** on the left indicates that this entity type will be transformed. You can deactivate the transformation of types by clicking in the far left table column.

The target type (**To**) of the highlighted entity type can be changed by clicking on the desired type in the list on the right. If **Show all Types** is **on** you can review and modify the transformation settings for all entity types – even of those currently not present in the drawing. These settings will be kept when the program is closed. Thus, you can create a global transformation list for future tasks.

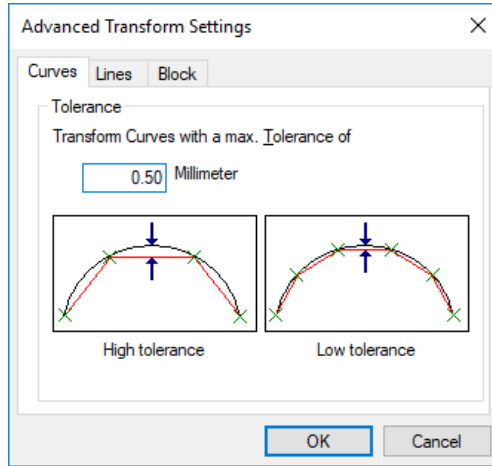
Please note the following limitations:

- points can only be transformed to blocks
- blocks can only be transformed to points
- MText can only be transformed to text

When double-clicking the destination type **Ortho Line** or **Block**, the according settings dialog pops-up (see below).

By default the target types and the original entity types are identical.

Advanced Settings - Curves



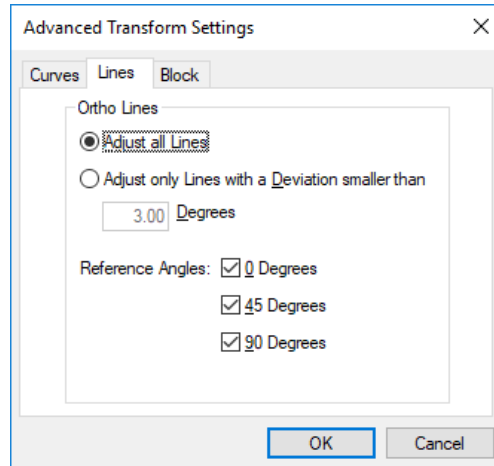
Accuracy

Circle, arcs, splines, and ellipses will be exploded into short line segments. These will form the new combined element. **Tolerance** refers to the maximum distance of the line segments to the original curve.

Lower tolerance values will result in an increased accuracy, however, will also create more line segments.

Default: **0.50 User Units**

Advanced Settings – Lines

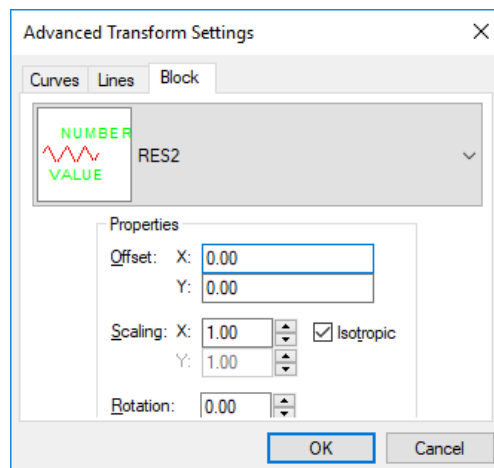


Ortho Lines

For the target type **Ortho Line** only. When **Adjust all lines** is switched **on** all lines will be set to **0°** and/or **90°** reference angle positions. When **Adjust only lines with a deviation smaller than** is switched **on** only lines according to the given deviation value will be included.

Default: **No Transformation**

Advanced Settings - Block



For the target type **Block** you can specify the block definition. If this block definition also has attribute definitions, the new blocks will get attributes with default values.

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

If a block definition was selected on a previous run, and this block definition is not available in the current document, than the selection is empty. In this case, import the desired block definition to the document, select another entry, or do not use block as target type.

Properties

The new **Blocks** will be inserted with the following properties.

Offset: The block will be inserted at the center point (insertion point) of the object to be replaced. You can specify an **Offset** to this point.

Default: **X = 0.0, Y = 0.0**

Scaling: The block will be inserted with the specified scaling. To enter different values for **X** and **Y** you have to uncheck **Isotropic**.

Default: **X = 1.0, Y = 1.0**

Rotation: The block will be inserted with the specified angle.

Default: **0.0**

Assign Elevation

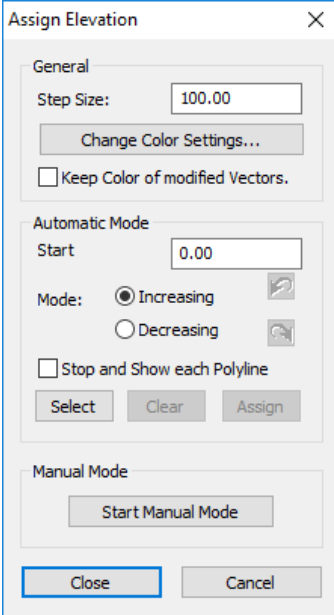


Toolbar: **Edit Vectors**



Menu: **Vector ► Edit ► Assign Elevation**

CMD: **VPASSIGNELEVATION ► Dialog**

A dialog box opens for setting up the elevation assignment procedure:



The dialog box is titled "Assign Elevation" and contains the following sections:

- General**
 - Step Size:
 - Change Color Settings...
 - Keep Color of modified Vectors.
- Automatic Mode**
 - Start:
 - Mode: Increasing  Decreasing 
 - Stop and Show each Polyline
 - Select Clear Assign
- Manual Mode**
 - Start Manual Mode

Close Cancel

General

Enter the **Step Size**, i.e. the increment of altitude steps referring to your drawing/map.

Default: **100.00**

Keep Modified Color {on/off}

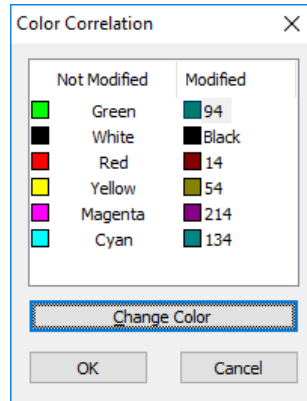
If checked on the polylines keep their new color after termination of the assignment process.

Default: **off**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Color Settings

Allows defining the new color assigned to any polyline which has been processed (i.e. has been assigned an elevation):



For example: the color of all red polylines is changed to dark red after processing. This way it is easy to see which polylines have already been modified.

Change Color allows to assign any other color to a base color (usually the layer color).

Automatic Mode

In this mode the elevation will be assigned automatically to the selected polylines. It is assumed that all contour lines have a common altitude difference (step size) between 2 contour lines (polylines). Therefore, you need to select some neighboring contour lines with a crossing line and define the start elevation and a mode (increasing or decreasing). With **Assign** all selected contour lines receive their corresponding elevation and the new color, too (to indicate the modification).

Start Elevation

Enter the value of the start elevation for the contour line crossed first during selection.

Default: **0.0**

Mode

The mode allows for selecting whether the start elevation should increase or decrease along the selection line.

Stop and Show Each Polyline

The process will stop after assigning the new altitude to any polyline for control reasons.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Select

Select polylines by drawing a line across. All intersected polylines will be selected.

Clear

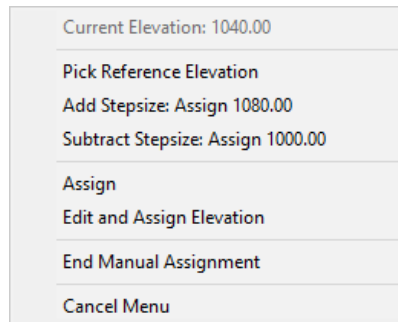
Resets a selection.

Assign

Assigns a new elevation to the selected polylines depending on the settings (ascending / descending). The elevation of a polyline can be reviewed using tooltips.

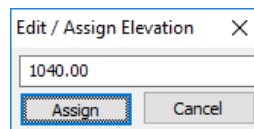
Manual Mode

The manual mode allows to individually assign an elevation to a selected contour line. Select the desired polyline. The following menu opens and shows the actual elevation of the selected polyline in the first line:



You may pick a neighborhood reference elevation if available and add or subtract the assigned step size.

Selecting **Edit and Assign Elevation** opens a dialog to enter the new elevation:



With **End Manual Assignment** you return to the main dialog.

Close

Terminates the assignment process. If not otherwise confirmed all modified contours receive their original color back and the dialog closes.

- | | | |
|--|--|---|
| <input type="checkbox"/> VPstudio | <input type="checkbox"/> VPraster | <input checked="" type="checkbox"/> VPmap pro |
| <input type="checkbox"/> VPstudio mono | <input type="checkbox"/> VPraster edit | <input checked="" type="checkbox"/> VPmap |
| <input type="checkbox"/> VPlite | | |

Check Elevation

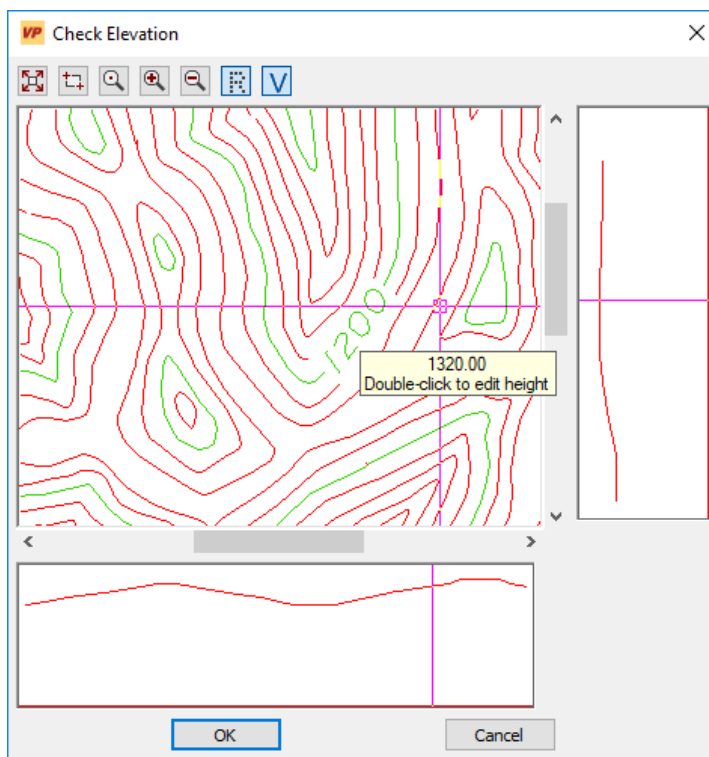


Toolbar: **Edit Vectors**

Menu: **Vector ► Edit ► Check Elevation**

CMD: **VPCHECKELEVATION ► Dialog**

A dialog box opens for checking and setting elevation values:



The areas on the right and at the bottom display the cross-section profiles of the elevation model at the current position of the crosshair. The right area displays the vertical cross-section, while the bottom area displays the horizontal cross-section.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

With the zoom buttons at the top of the dialog you can check the elevation model in more detail:



Zoom In.



Zoom Out.



Zoom Window allows for selecting a rectangular image area to zoom in.



Zoom 1:1. Click the desired center of the view with the left mouse button to zoom in. Then, the cursor changes back to crosshair.



Zoom Extents shows the entire image in the preview window. This is the default view. The raster and vector entities can be switched on and off:



View Raster shows the raster image in the dialog when **on**.



View Vectors shows the vector entities in the dialog when **on**.

Moving the crosshair over a contour shows its elevation in a tool tip. Double clicking modifies the elevation of a contour. The **Edit / Assign Elevation** dialog opens.

Divide Polygon

Divide By Line



Toolbar: **Divide Polygon**

Menu: **Vector ► Divide Polygon ► By Line**

CMD: **VPDIVLINE**

Divides a polygon into two single polygon objects by drawing a boundary line.

Select a polygon object first. Then draw a polyline: the polygon will be divided alongside the boundary polyline. Make sure to only divide into **two** parts.

Divide By Offset



Toolbar: **Divide Polygon**

Menu: **Vector ► Divide Polygon ► By Offset**

CMD: **VPDIVOFFSET**

Divides a polygon into two single polygon objects. The boundary line will be defined according to the distance to the polygon's border.

Select a polygon object first. Then click on the polygon's border - a boundary line parallel to the selected border will appear. You can move the boundary line with your mouse, or you can enter a fix distance value in the command line.

Divide By Ratio



Toolbar: **Divide Polygon**

Menu: **Vector ► Divide Polygon ► By Ratio**

CMD: **VPDIVRATIO**

Divides a polygon into two single polygon objects by entering a ratio value related to the surface area.

Select a polygon object first. Then click on the polygon's border- a boundary line parallel to the selected border will appear. Enter a ratio value in the command line; e.g. „50“ will result in two polygon objects with an equal surface area.

SECTION 10

DIMENSIONS

General Information

VP software offers extensive features to create dimension in your drawings - **for both vector and raster**. By adapting individual dimension styles you can generate CAD-style dimensions in up-to-date standards.


In general, dimensions are created in the **Active Layer** with the **Active Dimension Style**.



Dimension Modes

To create dimensions four different modes can be selected by turning the switches **Manual Mode** and **Text Mode** on or off. These modes may be changed at user's discretion while a dimension function is active.

Manual Mode {on/off} (only Windows)



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Manual Mode**

CMD: **VPDIMMANUAL**

If set to **on** the origin points of the dimension are set manually. Otherwise, an entity (**raster** or **vector**) has to be selected to create a dimension. Then, the origin points are defined by the geometry of the selected entity.

Default: **off**

Text Mode {on/off} (only Windows)



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Text Mode**

CMD: **VPDIMTEXT**

If set to **on** the user may enter or modify dimension text when creating a new dimension. Otherwise, the measurement figure of the drawing is used as text. The text properties symbolize the measurement figure with "<>".

In addition, the dimension text may be extended by the dimension type (e.g. "R" for radial) or style (e.g. tolerances).

Default: **off**

Dimension Style

Dimension Style Manager



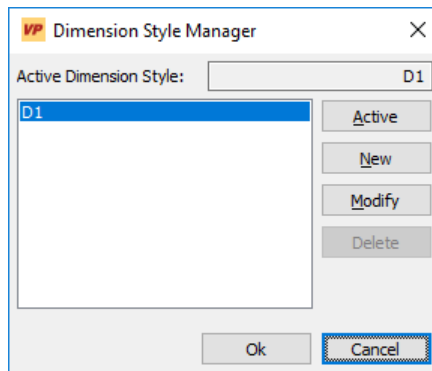
Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Dimension Style**

CMD: **VPDIMSTYLE**


CAD: **_dimstyle**

The following dialog opens:



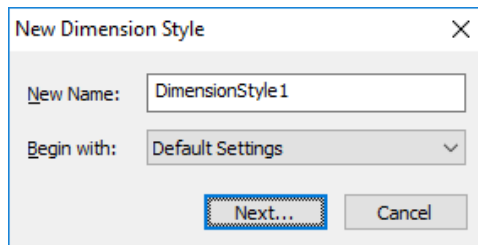
All currently available dimension styles are displayed.

Active

 After selecting a dimension style from the list it can be defined as the active dimension style by clicking **Active**. You may also change the selection at any time using the dimension style selection box from the toolbar.

New

A new dimension style can be created with **New**. The following dialog opens:





New Name:

Enter the desired name for the new dimension style.

Begin with

Choose whether the new dimension style should be preset with the **Default Settings** or with the properties of an existing dimension style.

Next

Click **Next** to proceed with the creation of the new dimension style. The dialog **Dimension Style** opens (see below) to define the properties of the new dimension style.

After closing the dialog with **OK** the newly created dimension style is added to the list of available dimension styles in the **Dimension Style Manager** where it can be set to active.

Cancel

No new dimension style will be created.

Modify

The **Dimension Style** dialog opens (see below) for modifications of the dimension style properties.

Delete

The selected dimension style will be deleted. A respective message appears in case this style is already used in the current document, or if this style is the currently active dimension style.

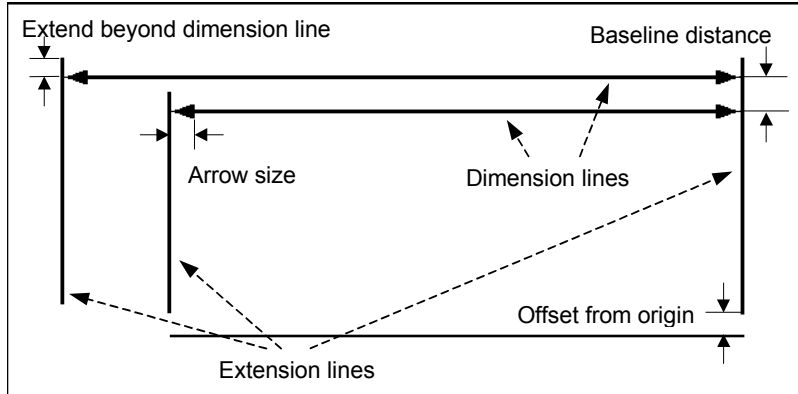
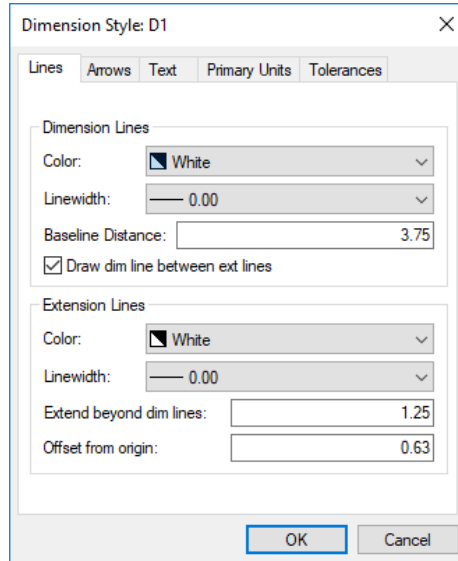
OK / Cancel

OK closes the **Dimension Style Manager** and accepts all modifications. **Cancel** discards all modifications.

Dimension Style Properties

This dialog allows for modifications of the dimension style selected in the **Dimension Style Manager**.

Tab Lines



Dimension Lines

- Color** Select the desired color for the dimension line and the arrow heads (arrow or line) from the list.
Default: White
- Linewidth** Select the line width for the dimension line.
Default: 0.00 [mm]
- Baseline Distance** Enter the distance between two dimension lines in the dimension type **Baseline Dimension**.
Default: 3.75 [mm]



Draw dim line between ext lines

Valid for radial and diameter dimensions. Extends the dimension line to the center of the arc, or to the opposite side of the circle.

Default: on

Extension Lines

Color Select the desired color for the extension lines from the list.

Default: White

Linewidth Select the line width for the extension lines.

Default: 0.00 [mm]

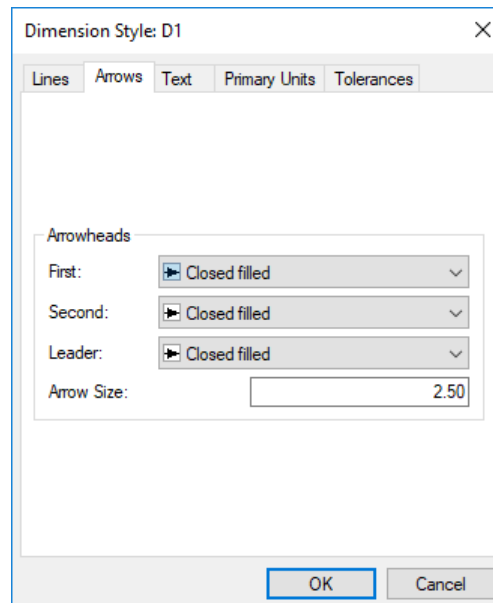
Extend beyond dim lines Specify how much the extension lines should protrude the dimension lines.

Default: 1.25 [mm]

Offset from origin Specify the distance to offset the extension lines from the origin points that define the dimension.

Default: 0.63 [mm]

Tab Arrows



Arrowheads

Select the shape of arrowheads from a list of predefined symbols.

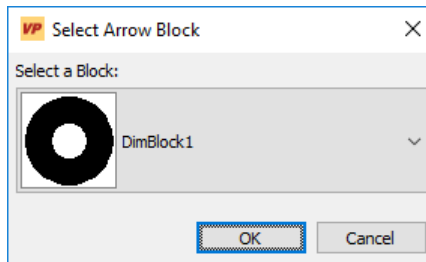
First First (left) arrowhead
Default: **Closed filled**

Second Second (right) arrowhead
Default: **Closed filled**

Leader Arrowhead of leader
Default: **Closed filled**

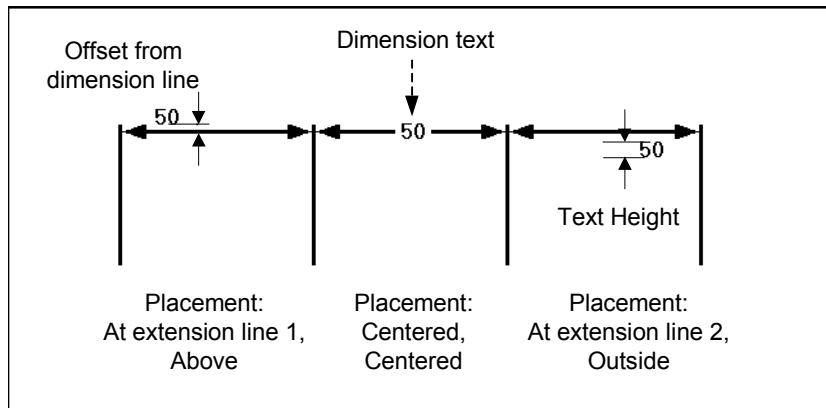
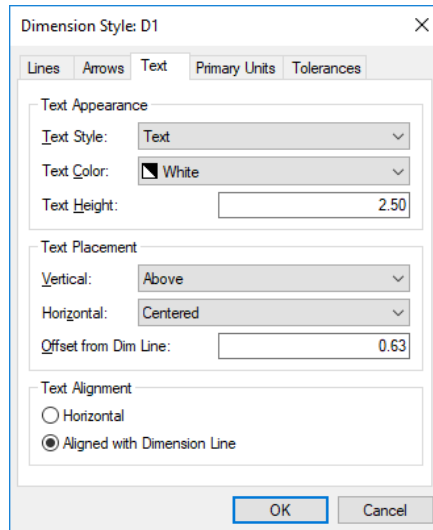
Arrow Size Specify the length of the arrow or oblique tick.
Default: **2.5 [mm]**

User defined symbols can also be used. To do so, create first a block definition (or import it from a library). Then, click in the list on **Others...** to open the selection dialog.



In order for the block to fit to the dimension entity, its size must be adjusted to a width and height of **1.0**.

Tab Text



Text Appearance

Text Style Select the desired text style for the dimension text from the list (see **Text Style**, Chapter 4).

Default: Text

Text Color Select the desired text color for dimension text from the list.

Default: White

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Text Height Specifies the desired text height for dimension text.

Default **2.50[mm]**

Text Placement

Vertical Specifies the position of the dimension text on the dimension line. Choose between **Centered**, **Above**, or **Outside**.

Default: **Above**

Horizontal Specifies the position of the dimension text along the dimension line. Choose between **Centered**, **At Ext Line 1**, or **At Ext Line 2**.

Default: **Centered**

Offset from Dim Line

Specifies the distance of the dimension text from the dimension line when **Above** or **Outside** is selected for the horizontal text position.

Default: **0.63 [mm]**

Text Alignment

Horizontal The dimension text is always horizontal.

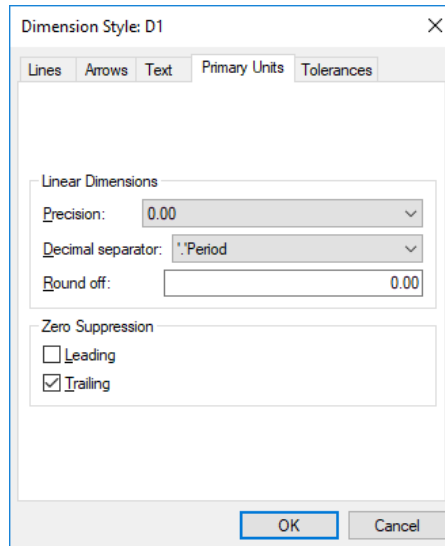
Align with dimension line

The dimension text is parallel to the dimension line.

Default: **Align with dimension line**

Tab Primary Units

The following settings are only valid when the dimension text is to show the actual measurement figure, i.e. the text contains "<>". Otherwise, the dimension text will be displayed as entered.



Linear Dimensions

Precision

Choose the number of decimal places in dimension text from the list.

Default: 0.00

Decimal separator

Choose between **'Period**, **'Comma** and **'Space** as separator for the decimal format.

Default: 'Period

Round off

The step size for rounding the dimension text, e.g. at a value of 0.25 the dimension text 10.73 is rounded off to 10.75.

Default: 0.00 (no round off)

Zero Suppression

Leading {on/off}

If set to **on** a dimension text with a value less than 1 starts with the decimal separator (e.g. 0.50 => .50).

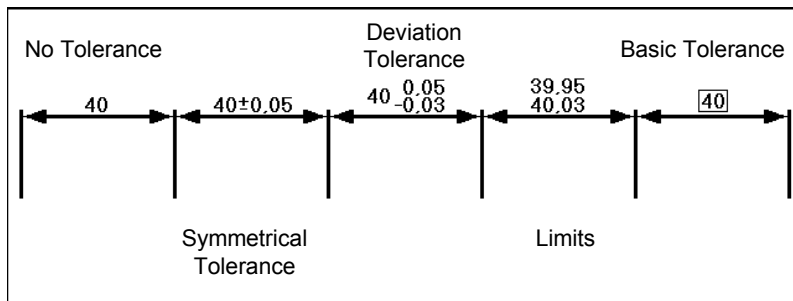
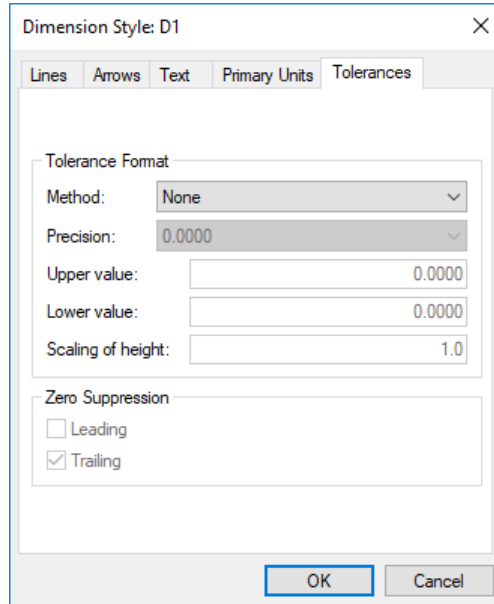
Default: on

Trailing {on/off}

If set to **on** all trailing zeros of a dimension text are suppressed.

Default: on

Tab Tolerances



Tolerance Format

- Method** Choose between the tolerance methods **None**, **Symmetrical**, **Deviation**, **Limits** and **Basic** from the list.
Default: None
- Precision** Choose the number of decimal places for tolerance values from the list.
Default: 0.0000
- Upper Value** Specifies the value for the deviation with method **Symmetrical** or the upper value for methods **Deviation** and **Limits**.
Default: 0.00

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Lower Value Specifies the lower tolerance value for methods **Deviation** and **Limits**.

Default: 0.00

Scaling of height Specifies a scale factor for text heights. This value is multiplied with the dimension text height to define the text height for tolerance values.

Default: 1.0

Zero Suppression

Leading {on/off} If set to **on** a dimension text with a value less than 1 starts with the decimal separator (e.g. 0.050 => .050).

Default: on

Trailing {on/off} If set to **on** all trailing zeros of a dimension text are suppressed.

Default: on

Transfer to Current Dimension Style (only Windows)



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Transfer to Current Dimension Style**

CMD: **VPSHIFTDIMSTYLE <NAME>**

Selected dimensions are transferred to the current or specified dimension style.

Dimension Types

Linear Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Linear**

CMD: **VPDIMLINEAR**

CAD: **_dimlinear**

The dimension line is always horizontal or vertical. The extension lines may possess different lengths.

At first the origin of the two extension lines (and with that the length of the dimension line) is determined. Either select the entity to dimension (line, arc, circle, or polyline segment) or -only in **Manual Mode** - specify the origin of the first and second extension line.

The dimension line is now moveable in order to set the extension lines' lengths. Specify the position of the dimension line by mouse click or enter the coordinates at the command line. The dimension will be added to the drawing.

In **Text Mode** the dialog for entering the dimension text is displayed after specifying the origin of the extension lines.

Aligned Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Aligned**

CMD: **VPDIMALIGNED**

CAD: **_dimaligned**

The dimension line is parallel to the entity. Therefore, the extension lines always possess the same length.

At first the origin of the two extension lines (and with that the length of the dimension line) is determined. Either select the entity to dimension (line, arc, circle, or polyline segment) or -only in **Manual Mode** - specify the origins of the first and second extension line.

The dimension is now moveable in order to set the extension lines' lengths. Specify the position of the dimension line by mouse click or enter the coordinates at the command line. The dimension will be added to the drawing.

In **Text Mode** the dialog for entering the dimension text is displayed after specifying the origin of the extension lines.

Radial Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Radius**

CMD: **VPDIMRADIUS**

CAD: **_dimradius**

At first the value of the radius is determined. Select the entity to dimension (arc or circle). Now, the dimension line can be rotated around the center. At the same time, specify the position of the dimension text and angle of the dimension line by mouse click or enter the coordinates at the command line. The dimension will be added.

In **Manual Mode** specify two points for center and length (angle included in this) by mouse click or at the command line. Now, position the dimension text with a third point. The dimension will be added.

In **Text Mode** the dialog for entering the dimension text is displayed after specifying the radius value.

Diameter Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Diameter**

CMD: **VPDIMDIAMETER**

CAD: **_dimdiameter**

At first the value of the diameter is determined. Select the entity to dimension (arc or circle). Now, the dimension line can be rotated around the center. At the same time specify the position of the dimension text and angle of the dimension line by mouse click or enter the coordinates at the command line. The dimension will be added.

In **Manual Mode** specify two points for start and end point of the diameter (angle included in this) by mouse click or at the command line. Now, position the dimension text with a third point. The dimension will be added to the drawing.

In **Text Mode** the dialog for entering the dimension text is displayed after specifying the diameter value.

Angular Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Angular**

CMD: **VPDIMANGULAR**

CAD: **_dimangular**

Specifies the dimension of the angle between two lines, an arc, or of a circle segment.

Angle between two lines:

Select two lines. The dimension line arc is attached to the cursor to specify its position and the extension lines' lengths. A mouse click adds the dimension to the drawing.

Angle of a circle segment:

Select a circle. The click position of the selection also determines the start of the segment and the origin of the first extension line. Specify the end of the segment and the origin of the second extension line by clicking again. Now, the dimension line arc is attached to the cursor to specify the extension lines' lengths and the position of the dimension line arc. Clicking the left mouse button adds the dimension to the drawing.

Angle of an arc:

Select an arc. Now, the dimension is attached to the cursor to specify the extension lines' lengths and the position of the dimension line arc. Clicking the left mouse button adds the dimension to the drawing.

Manual Mode

The first point sets the center. The second and third points define the start and end points of the dimension line arc together with the origins of the extension lines. Specify the extension lines' lengths and the position of the dimension line arc with the fourth point.

In **Text Mode** the dialog for entering the dimension text is displayed after specifying the angle.

Continue Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Continue**

CMD: **VPDIMCONTINUE**

CAD: **_dimcontinue**

Continue the dimension from the second extension line of the previous dimension. In **Manual Mode** the dimension to continue has to be selected first. Only the dimension types **Linear**, **Aligned**, and **Angular** can be continued. The length of the new dimension line is specified by mouse click or by entering the coordinates at the command line. The dimension is added to the drawing and may be continued.

Exit the function by clicking the respective icon again or by hitting **[Esc]**.

In **Text Mode** the dialog for entering the dimension text is displayed after specifying the dimension line.

Baseline Dimension



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Baseline**

CMD: **VPDIMBASELINE**

CAD: **_dimbaseline**

Above the previously inserted dimension an additional dimension of the same type is added. In **Manual Mode** the dimension has to be selected first. Only the dimension types **Linear**, **Aligned**, and **Angular** can be used for this function. The distance between the dimension lines is defined by the specified **Baseline Distance** in the **Dimension Style**. The length of the new dimension line is specified by mouse click or by entering the coordinates at the command line. The dimension is added to the drawing and an additional dimension may be entered.

Exit the function by clicking the respective icons again or by hitting **[Esc]**.

In **Text Mode** the dialog for entering the dimension text is displayed before specifying the dimension line.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Leader



Toolbar: **Dimension**

Menu: **Vector ► Dimensions ► Leader**

CMD: **VPLEADER**

CAD: **_leader**

Insert a new **Leader** by specifying the start point and the end point. Like in **Text Mode** a dialog pops up to enter the desired leader text.

SECTION 11

TABLE RECOGNITION

General Information

The Table Recognition offers you enhanced functions to modify text tables in raster files: adjust the content and the shape of an existing table to adapt it to your requirements. Additionally, you can convert tables into vector format and export it to other applications.

The Table Recognition can be applied to b/w images as well as to gray scale or colored images.

Table Recognition



Toolbar: **Table Recognition**

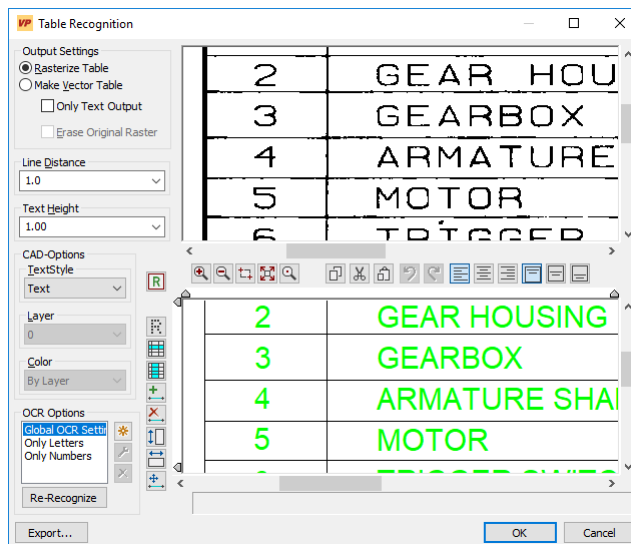
Menu: **Vectorize**, Function: **Table Recognition**

CMD: **VPTABLEREC** ► Dialog

CMD: **VPTABLEREC /f|Filter** <Filter Name> /o|Options <Filter Options> [/q] <x1> <y1> <x2> <y2>

After starting the function without command line parameters, the table needs to be selected. Draw a rectangle around the table region. If you are working on a gray scale or colored image the **active color** has to be specified first (see chapter 4: **Image Settings**).

Then, the following dialog appears:



The upper area displays the original raster for control purposes, while in the lower area you can modify the recognized table interactively.

Output settings

These settings determine in which way the modified table will be inserted into the document.

Rasterize Table: deletes the original table and replaces it with the modified table.

Make Vector Table: converts the modified table into vectors.

Only Text Output: only the text is transferred, the lines of the table are deleted.

Erase Original Raster: the original table will be erased.

If the original table in the raster image shall be erased (**Rasterize Table** or **Make Vector Table** with option **Erase Original Raster** switched **on**) a colored rectangle is shown in the upper area of the dialog. You can move the border lines of the rectangle to change its size.

Content of table / Text

To create or modify text click into a cell - a blinking cursor appears identifying this cell as the active cell. The active cell is also marked in the raster table in the upper area.

The Table Recognition is operating "line based", i.e. when modifying the text format this will always affect the entire line (of a cell) indicated by the blinking cursor (active line). Select multiple lines to modify more than one line.



A text must fit completely into a cell and in between the set indents. Formatting or changing text with non-fitting sizes will be stopped automatically. A warning message will appear in the status bar of the dialog. Right-click on the status bar to open a context menu with the warning settings.

Textstyle

Change the textstyle to modify the display of text. For more information see **CAD-Options** below.

Indent

With the indent markers you can set horizontal and vertical indents:



The indent shown refers to the active line. If multiple lines are selected the minimal indents of all lines are shown. Changes are applied to the active line / selected lines.

If you have selected multiple lines in one column the new indents will be assigned to all lines. Selected lines in more than one column are modified individually so that the indents of each line are changed by the same factor.

Text in the selected lines will be re-adjusted.

Line Distance

The line distance of the active line is displayed. There is no display when multiple lines with different line distances are selected. Changes are applied to the active line / selected lines.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Text Height

The text height of the active line is displayed. There is no display if multiple lines with different text heights are selected. Changes are applied to the active line / selected lines.

Adjust Text



The horizontal adjustment of the active line is displayed. There is no display if multiple lines with different settings are selected. Changes are applied to the active line / selected lines.



The vertical adjustment of the active line is displayed. There is no display if multiple lines with different settings are selected. Changes are applied to the active line / selected lines.

The adjustment refers to the indent markers.

Cut, Copy, Paste



Use these functions to cut or copy text and to paste it to different locations. Formatting options at the insertion point will be applied to the new text.

CAD Options

These options are necessary only if a table shall be converted to vectors (except: **Textstyle**). The default setting for all text is the **Active Textstyle**, the **Active Layer**, and the **Active Color**.

Textstyle

The textstyle of the active line is displayed. To change the textstyle choose an entry from the list or select **Other...** to open the Textstyle Manager (see chapter 4: **Textstyle Manager**).

Layer


The layer of the active line is displayed. To change the layer, choose an entry from the list, or select **Other...** to open the Layer Manager (see chapter 4: **Layer Manager**).

Color

The color of the active line is displayed. To change the color choose an entry from the list.

OCR Options (Text recognition)

Initially, the whole table is recognized with the **Global OCR Settings**. Use the cell selectors 

 (see below) to select a row/column of cells. Select a different OCR setting from the list to apply these settings to the selected cells. With **Re-Recognize** the selected are recognized again with the new settings.

Predefined settings are:

Global OCR Settings: The currently specified OCR settings (can be changed with **Options – OCR Settings**, see **Chapter 4**).

Only Letters: All letters, but no numbers (digits) are recognized.

Only Numbers: Only numbers are recognized.

Default: **Global OCR Settings**



New settings . After specifying a name the dialog for the **OCR Settings** will show up.



Modify: Opens the dialog for the **OCR Settings** to modify the selects settings.



Delete the selected settings.

Re-Recognize

The currently selected cells are recognized again with the OCR settings assigned to them.

Shape of Table / Cells

Use the following functions to modify the shape of the table. Cells, rows, or columns may be resized, added, or erased.



If you are going to resize a table do not forget to resize the erase rectangle in the upper area, too.



While cells are modified text cannot be selected or modified.

Display original raster in the lower area



The selected raster table is displayed in the lower area for checking purposes.

Select cells



Click into a cell to select a complete row or column.

Create cells



Create new cells by drawing border lines in the lower area. The new lines are snapped to existing border lines.

Delete cells



Delete cells by removing their border lines. Click on the line to be removed or window-select multiple lines. Only empty cells can be deleted.



Adjust cell size



Applies the same width or height to all selected cells. The average value of widths and heights will be used.

Resize cells



Resize cells by moving their border lines.

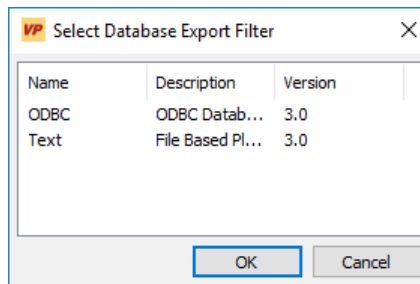
Copy raster structures



The Table Recognition function will only create lines and texts automatically. If your table contains other raster structures (e.g. images, logos) which you would like to keep in the new table then use this function to copy these structures. Start the function and draw a rectangle around the desired raster structure in the upper area. It will copy the raster selection into the lower area. Use the mouse for correct positioning.

Export

A dialog pops up to select one of the available database export modules.



The export can only work if the table is homogeneous, i.e. the number of cells in each row must be identical. Otherwise an error message appears.

Finish the Table Recognition

Click **Ok** to close the dialog. According to the **Output Settings** the new table will be inserted into the raster file or converted in vectors. **Cancel** will discard all changes.

Fast Table Recognition with Export

For fast table recognition with subsequent export, the command can be started with command line parameters. This method allows a table to be recognized and exported with little interaction (see also **Export** above).

Required Parameters

Filter name (/f): Name of the database export module.


Filter options (/o): Options for the database export module (see below).

Optional Parameters

No Dialogs (/q): With this parameter no dialogs are displayed during the execution of the command.

Position of the table (x1 y1 x2 y2): Coordinates of the area on which the table recognition is to be performed.

Creating the Filter Options using the Script Generator

Start the script generator (menu **File ► Create Script...**). Double-click  **VPTABLEREC** in the list **Available Commands** - the command will be added to the **Selected Commands** list and the corresponding options will be displayed.

Select a **Filter** in the options on the right. Then, click on the small button in the **Options** field to open the corresponding filter options dialog. Now you can make the desired settings. When you close the dialog, the **filter options** are displayed as a **text string**. This string can be copied and used as command line parameter.

SECTION 12

INTERACTIVE TRACING

General Information

The trace functions allow for interactive raster-to-vector conversion.

The active raster file should be cleaned or corrected before proceeding. Depending on the type of original, the **CAD Trace** function can be used to generate CAD elements, such as lines, circles or arcs, typical for technical drawings. The **Contour Trace** function creates polylines and offers a conversion into splines, preferably for GIS applications. On drawings that contain intersecting contours the function **Interactive Trace** is useful to create connected polylines or splines with maximum control: at each intersection the user can decide on the direction to continue the contour.

Tracing is also provided for **color** and **grayscale raster data**. Their interpretation will refer to the settings definitions in **Image Settings** (see **Section 4**).

The traced raster elements can be erased automatically from the raster image by using the option **Erase Raster Background** (see below).

Trace Settings



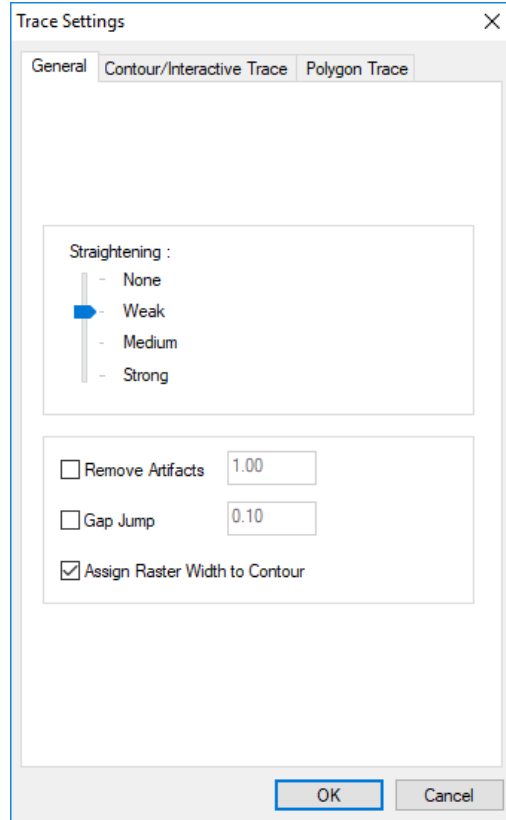
Toolbar: **Tracing**

Menu: **Vectorize ► Trace Settings**

CMD: **VPTRACESETTINGS**

A dialog box opens to define the trace settings for Contour Trace and Interactive Trace.

General Tab



Straightening

The parameter **Straightening** defines how precise the trace process follows a raster line. **Medium** or **High** reduces the number of vertices significantly. However, it also reduces the precision of the line following process. The highest precision (especially when tracing contour lines) is achieved by setting straightening to **None** and selecting **Exact** in the **Image Settings** dialog. Hence, these settings will generate significantly more vertices in polylines.

Default: **Weak**

Remove Artifacts {on/off}

When **Remove Artifacts** is activated, short line segments or line spurs ("artifacts") are automatically removed, which otherwise would lead to unwanted trace results. The size of these artifacts can be entered via keyboard or measured using the **[F2]** key.

Default: **off**

Default value: **1[mm] or 0.04[inch]**

Gap Jump {on/off}

Small interruptions in the raster image, very often due to faded and old originals, will be closed automatically up to a reasonable distance.



If the value is set too high neighboring contours may be connected unintentionally!

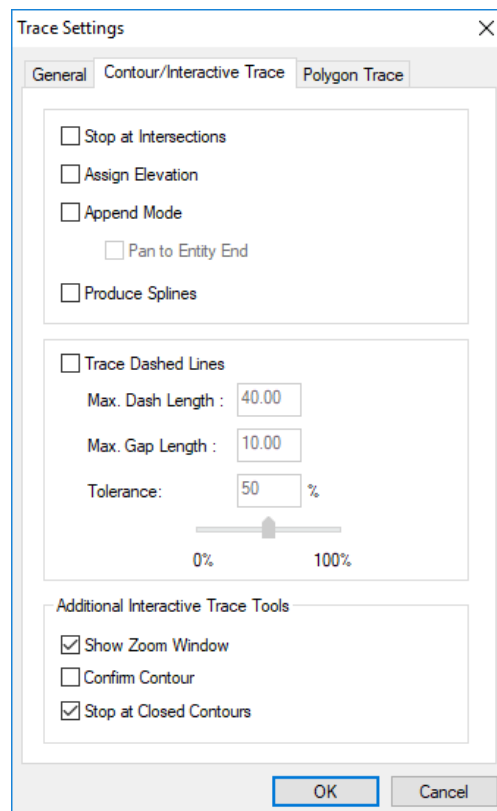
Default: off
Default value: 0.1[mm] or 0.004[inch]

Assign Raster Width to Contour {on/off}

The width of the underlying raster will be assigned to the traced entity. Otherwise, the active **Pen Width** is used.

Default: on

Contour/Interactive Trace Tab



<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Stop at Intersections {on/off}

The line following process will stop at each crossing/intersection. Otherwise, the most probable direction will be taken and the line following process continues.

Default: **off**

Assign Elevation {on/off}

After tracing a polyline or spline you are prompted for an elevation value. The tracing process attempts to find elevation numbering information that interrupts the contour. If successful, the elevation is presented in the dialog as the default value and the contour is continued across the gap. In the **Interactive Trace** mode the gap will not be closed automatically. The **[Shift]** key can be used to append the continuation to the traced contour. This way you can create 3D models of a contour map for other applications.

Default: **off**

For reviewing the elevation model use the function **Check Elevation**.



Since VP software can only display 2D entities you will not see this additional spatial information. Instead, load the data into a CAD system capable of displaying three-dimensional vector data.

Append Mode {on/off}

After tracing a polyline or spline a dashed line between the cursor and the end of the trace entity appears. It indicates that the element traced next will be appended. For example, if you have broken raster lines this option allows for an easy combination of traced elements.

Holding down the **[Shift]** key interrupts this mode to start a new line.

If **Pan to Entity End** is **on**, the system pans to the nearest end of the last traced contour line automatically. This will help to find the next line to continue with.

Default: **off**

Instead of activating the permanent **Append Mode** you may also press the **[Shift]** key whenever you want to append a new element to the previous one. This intermediate append status will be indicated by a "+" sign at the trace cursor.

Produce Splines {on/off}

Generates splines instead of polylines.

Default: **off**



The program can generate splines with an arbitrary number of vertices. However, not all CAD programs are able to process splines with a large number of vertices.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Trace Dashed Lines {on/off}

For tracing dashed contours activate this option and enter a representative **Max. Dash Length** and a **Max. Gap Length**. For best results use the [F2] key and measure the correct values from the drawing. Increase the **Tolerance** value if the tracing process leaves out dashes.

Default Tolerance: **50.0%**

Additional Interactive Trace Tools

Show Zoom Window {on/off}

A small window shows a detailed view of the intersection and the possible directions as **green** (most probable and therefore preferred direction) and **red** (optional) arrows.

Default: **on**

Confirm Contour {on/off}

When reaching the end of a contour the cursor changes to the **OK?** symbol for confirmation or modification. Click the left mouse button to accept the contour result or use **Back** from the context menu to go one trace step back.

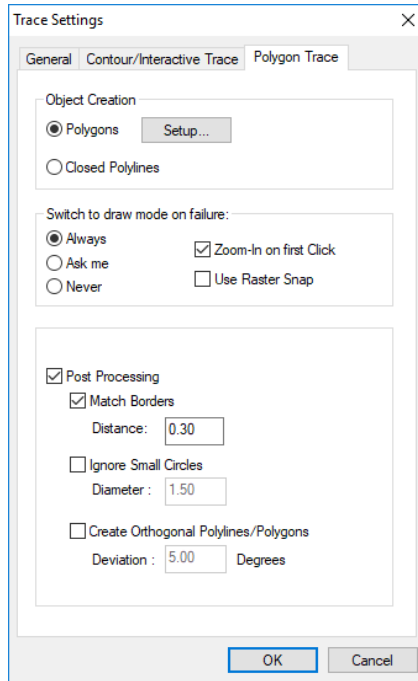
Default: **off**

Stop at Closed Contours {on/off}

Tracing will stop when the contour forms a closed loop.

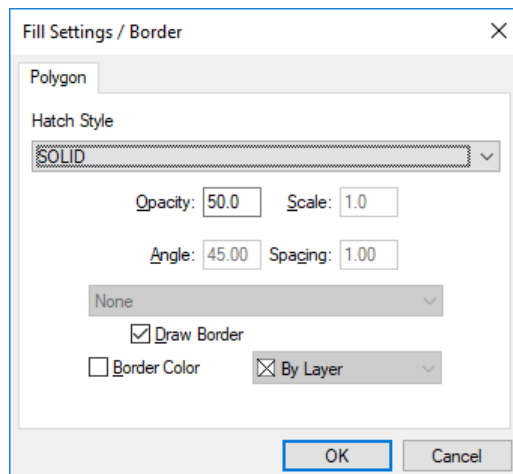
Default: **off**

Polygon Trace Tab



Object Creation

Choose between **Closed Polylines** and **Polygons**. Clicking the **Setup** button allows for defining the hatch style for polygons:



<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Hatch Style

Select a hatch style defining the fill pattern.

Depending on the selected style the fields **Opacity**, **Scale**, **Angle**, and **Spacing** are available for editing. There are three predefined Hatch Styles:

- SOLID** the edit field **Opacity** is available for entering a value in the range **0-100%**
- LINES** the edit fields **Angle** and **Spacing** are available for specifying the appearance of the line based fill pattern.
- CROSSHATCH** the edit fields **Angle** and **Spacing** are available for specifying the appearance of the crosshatched fill pattern.

For all other **Hatch Styles** the edit fields **Angle** and **Scale** are available to rotate or stretch/squeeze the fill pattern.

Default: **SOLID**
Opacity: **50%**
Scale: **1.0**
Angle: **45°**
Spacing: **1**

Draw Border

If **on** the borderlines of the polygon will be displayed. The elements line width will be used.

Default: **on**

Border Color

If **on** the borderlines will be displayed in the selected color. Otherwise the elements color will be used.

Default: **off**
Default: **By Layer**

Switch to Draw Mode on Failure

If the trace algorithm is unable to find a closed contour you have the choice to switch into manual draw mode **Always**, **Never**, or with **Ask me** decide to switch after a message comes up.

The system offers you a closed polyline contour attached to the cursor with one vertex, allowing to manually enter additional vertices along the desired image contour in order to complete the tracing. The **green** line to the cursor indicates where to add the next vertex (next click). End with **[Enter]** or double click.

A right mouse pop-up menu offers you additional editing features.

Default: **Always**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Zoom-In on first Click {on/off}

If set to **on** the program zooms in on the first mouse click while in drawing mode for a more precise positioning (with the second mouse click) of vertices.

Default: **off**

Use Raster Snap {on/off}

If this option is set **on** the **Raster Snap [F11]** will be activated with its current settings when the software switches into draw mode.

Default: **off**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Post Processing {on/off}

Match Borders {on/off}

The created polygons/polylines will be recalculated automatically according to their neighborhood distance at any one vertex to the closest vertex of other polygons/polylines. This ensures that contours of neighboring entities do not have gaps in between. Any vertex distance larger than this value will not be re-adjusted.

Default: on
Default Value: 0.3 [mm]



Always turn **on** this function if you want to generate gapless and none-overlapping adjoining areas. A good value for the distance of two vertices, which should be combined, is the width of the original raster borderline.

Ignore Small Circles {on/off}

If corners of an area are marked by small circles (e.g. indicating landmark measure points) with about the value of **Diameter** in the original raster image, the circle contour will be ignored. Instead, a single vertex will be generated in the center of each small circle.

Default: off
Default Value: 1.5 [mm]

Create Orthogonal Polylines/Polygons {on/off}

Within the value of **Deviation** the line segments of the polygon/polyline will be aligned orthogonally to each other. This option can also be switched **on/off** via the context menu at the time the polygon trace command is active.

Default: off
Default Value 5°

Erase Raster Background



Toolbar: **Raster Edit**

Menu: **Edit ► Erase Raster Background**

CMD: **VPERASERASTER**

To erase raster elements automatically while following the tracing routine, click the **Erase Raster Background [Ctrl+E]** icon prior to starting the tracing. All traced raster elements will be deleted from the raster image.

With color or gray scale images the background will not be erased. Instead, the background pixels to be erased will be filled with the **Background Color** defined in **Image Settings**.

CAD Trace



Toolbar: **Tracing**

Menu: **Vectorize ► CAD Trace**

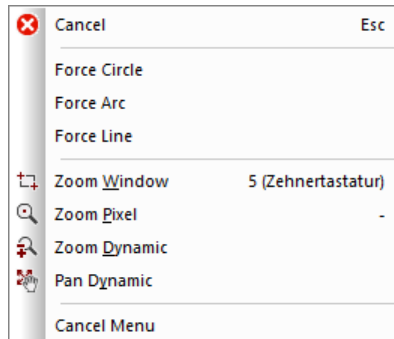
CMD: **VPCADTRACE**

CAD trace allows to recognizing the CAD elements **line**, **circle**, and **arc** and assigning them to the current layer. Special CAD elements, such as ellipses, arrows, donuts, line types, small circles, hatches, or text can be drawn or combined from the traced data using the editors. (See **Section 8 + 9**).



After clicking the **CAD Trace** icon, a **Needle and Thread** cursor appears to directly click on the raster data for element tracing. Pressing the **[Shift]** key (adding a "+" sign to the cursor and displaying a dashed line to the traced element) links the last traced CAD element to the next one, while preserving the element type (line, arc, circle) of the element initially traced. Arcs covering an angle of close to 360° will be closed and converted to a circle automatically.

Clicking the right mouse button opens the following context menu where you can force the system to recognize a particular element:



Contour Trace



Toolbar: **Tracing**

Menu: **Vectorize ► Contour Trace**

CMD: **VPCONTOURTRACE**

Use this function to trace **polylines** or **splines** in the currently active layer.



Click with the **Nail** cursor on the raster line. The trace module runs from this point in both directions, until it reaches the end of the line or stops at an intersection where the directions of the branches do not meet the internal angle tolerance.

Pressing the **[Shift]** key while clicking on the next raster line piece allows to continue the previous polyline. In this case, the **Nail** cursor appears with a "+" sign and a dashed display line is drawn to the traced contour.

If you are in **Append Mode**, the cursor is linked by a dashed line to the end of the traced line and the next part will be appended automatically. Pressing the **[Shift]** key will interrupt the append mode and a new line can be traced, although the **Append Mode** still is active.



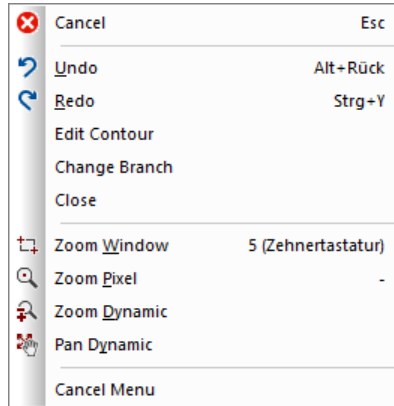
In order to add new vertices to a traced contour line at the current position press the **[Ctrl]** key. A "pin" cursor appears linked by a dashed line to the end of the traced contour. Clicking the left mouse button generates a new vertex at the click position, regardless if there is an active raster below. This allows for tracing across longer interruptions. From here, the tracing may continue.

In **Append Mode** you can add vertices by just clicking into an area without an active raster, i.e. without using the **[Ctrl]** button.

Clicking the right mouse button opens the context menu for editing as described below.

Contour Trace Edit Commands

At any point during the contour tracing operation you may click the right mouse button to open the context menu. The editing commands interrupt the tracing, but they will not abort it.



Edit Contour

The command **Edit Polyline/Spline** is executed. The last created polyline can be edited now in many ways (e.g. extend, shorten, explode, ...). After the editing is concluded the contour trace command will continue.

Refer to section [Edit Polyline/Spline](#) later in this chapter for an detailed description of the different functions.

Change Branch

Allows correcting the automatic routing of the trace function at junctions or crossings in the case that the auto tracing selected an unwanted direction. Just click onto the desired direction. This will result in an "Undo" of the tracing by returning to the junction where the correct (user selected) direction branches off.

Close Polyline

Closed the last created polyline.

Cancel Menu

The context menu is closed and the **Contour Trace** command is continued.

Interactive Trace



Toolbar: **Tracing**

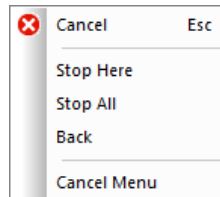
Menu: **Vectorize ► Interactive Trace**

CMD: **VPTRACEINTERACTIVE**

Use this function to trace **polylines** or **splines** in the currently active layer.



Click with the **Nail** cursor on the raster line. The trace module runs from this point in both directions, until it reaches the end of the line or stops at an intersection. At Intersections arrows appear for selecting the next tracing direction (if the option **Show Zoom Window** is switched **on** the arrows are also visible in the zoom window). Click on the respective arrow to continue the contour in the desired direction. When hitting the **[Enter]** key instead, the tracing follows the most probable direction indicated by a green arrow.



In case it is not desired that the contour continues over branches use **Stop Here** from the context menu. The contour may be continued from the other end if there is a branch, too.

Selecting **Stop All** creates a contour reflecting the current trace state – tracing will stop at both ends of a contour.

Back returns to the last intersection.

Pressing the **[Shift]** key while clicking on the next raster line segment allows to continue the previously created polyline/spline. In this case, the **Nail** cursor appears with a "+" sign and a dashed line is drawn from the cursor to the traced contour.

If you are in **Append Mode**, the cursor is always linked by a dashed line to the end of the traced line and the next section will be appended automatically. Pressing the **[Shift]** key will interrupt the append mode and a new line can be traced, although the **Append Mode** remains active.



In order to add new vertices to a traced contour line at the current position press the **[Ctrl]** key. A **"pin"** cursor appears linked by a dashed line to the end of the traced contour. Clicking the left mouse button generates a new vertex at the click position, regardless if there is an active raster below. This allows for tracing across longer interruptions. From here, the tracing may continue.

In **Append Mode** you can add vertices by just clicking into an area without an active raster, i.e. without using the **[Ctrl]** button.

When tracing a contour, clicking the right mouse button opens the context menu for editing as described in section **Contour Trace** above.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Polygon Trace



Toolbar: **Tracing**

Menu: **Vectorize ► Polygon Trace**

CMD: **VPPOLYGONTRACE**

Use this function to trace **closed polylines/polygons** in the current active layer.



Click with the **Nail** cursor inside an area and **NEAR** to a contour (border) line. The trace module runs from this point in both directions, until a closed contour is detected. Structures that lie completely inside this area (i.e. not touching the traced contour) will be ignored. According to your **Trace Settings** (see above) additional operations may take place. Use the right mouse button menu **to edit the contour** manually (see above).

When pressing the **[Shift]** key the **Nail** cursor appears with a "+" sign and switches into the append mode. Now, clicking inside another area combines (if the second area is completely outside the first one) or excludes (if the second area lies inside the first one) this second area to/from the first one.

Multi-Polygon Trace



Toolbar: **Tracing**

Menu: **Vectorize ► Multi-Polygon Trace**

CMD: **VPMULTITRACE**

Use this function to trace **closed polylines/polygons** in the current active layer from raster structures which are divided into multiple portions (e.g. hatched areas).



The **Nail** cursor appears. Draw a line **ACROSS** all dividing lines (hatch lines). Finish your input with **[Enter]** or a **double click**. The generated polyline/polygon will include all areas which are touched by the construction line. According to your **Trace Settings** (see above) additional operations may take place. Use the right mouse button menu **to edit the contour** manually.

When pressing the **[Shift]** key the **Nail** cursor appears with a "+" sign and switches into the append mode. Now, clicking inside another area combines (if the second area is completely outside the first one) or excludes (if the second area lies inside the first one) this second area to/from the first one.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Tracing Hatches

A special extension enabled by the **[CTRL]** key allows both functions **Polygon Trace** and **Multi-Polygon Trace** to automatically trace hatches and, thus, omitting the hatch lines during the trace process.

Pressing the **[CTRL]** key and clicking **ON** one of the **hatch lines** generates a polygon of the whole area. Hatch lines will be ignored.

Release the **[CTRL]** key and use the **[Shift]** key (append mode) to finish an uncompleted hatched area. Continue by clicking inside again **NEAR** a contour of one of the remaining hatch areas.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Edit Polyline/Spline



Toolbar: **Properties/Editing**

Menu: **Vector ► Edit Polyline/Spline**

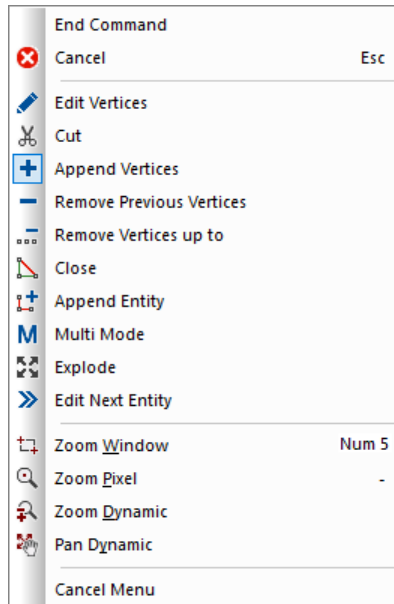
CMD: **VPPEDIT**

Use this function to edit polylines, splines, and polygons. If no entity is selected upon execution of this function you are asked to select an entity for modification. The selected entity is displayed with moving grips at each vertex and the **Edit Polyline/Spline/Polygon** toolbar pops up.



The initial mode is **Append Vertices** which lets you append vertices to the nearest end of the entity. If the entity is closed the **Edit Mode** will be activated instead.

Clicking the right mouse button activates the edit contour menu which contains the same functions as the toolbar and additional zoom commands:



Edit Vertices

In this mode vertices can be moved (holding down the left mouse button and dragging), added, or removed (**[Ctrl]+Click**). End this function by selecting a different function from the toolbar or from the context menu. Leave the menu with **End Command**.

Cut

Cuts a polyline/spline at the click position. The result will be two separate contour lines. A closed contour (closed polyline) can be opened using this command. End this function by selecting a different function from the toolbar or from the context menu. Leave the menu with **End Command**.

Append Vertices

Adds vertices one by one at the current click point by joining it to the nearest end of the contour. A dashed line indicates on which end the vertex will be added. To append to the far end hold down the **[Ctrl]** key. End this function by selecting another function from the toolbar or context menu. Leave the menu with **End Command**.

Remove Previous Vertices

Deletes vertices at the nearest line end. A dashed line indicates on which end of the contour the vertex will be removed. With each click one more vertex will be removed. To remove vertices from the far end hold down the **[Ctrl]** key. End this function by selecting another function from the toolbar or context menu. Leave the menu with **End Command**.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
■ VPlite		



Remove Vertices up to

Deletes vertices at the nearest line end up to the vertex clicked. A dashed line indicates on which end of the contour the vertices will be removed. To remove vertices from the far end hold down the **[Ctrl]** key. End this function by selecting another function from the toolbar or context menu. Leave the menu with **End Command**.



Close Polyline/Spline

Connects both ends of a contour with a line to form a closed contour.



Combine with Polyline

The cursor switches to the selection mode. Select a polyline to combine it with the one, which is currently edited.



Multi Mode

A Combination of **Edit Vertices**, **Append Vertices** and **Combine with Polyline**.



Explode Polyline

Breaks a polyline into its line segments. The function **Edit Polyline/Spline** will be terminated.



Remove Area (for Polygons only)

Excludes an area from a polygon. Click inside or on the outline of the area to remove it from the polygon.



Edit Next Entity

Accept the changes and select the next entity to edit.



Undo

Undo the last modification.



Redo

Redo the last **Undo** operation.



End Command

Use this command or hit **[Enter]** to leave the edit mode and confirm the modifications.

SECTION 13

VECTORIZATION (RASTER-TO-VECTOR CONVERSION)

General Information

The automatic vectorization (raster-to-vector conversion) combines raster thinning and entity post processing into one operation. The vectorization process converts the **Active Color** of a raster file to vectors. The definition of the **Active Color** allows converting any type of raster data (b/w, gray scale, or color) into vectors:

- With b/w raster data (bi-level) the foreground pixels are assigned as **Active Color**. No definition required.
- With color or gray scale images use the function **Image Settings** to define a specific **Active Color** by selecting a color or a color pattern (See **Section 4**). Otherwise, an automatic binarization method will define the active foreground pixels.

Parameter settings are used to determine the vectorization method, to define the area of the raster file to be converted, and to control the post processing. In order to obtain best conversion results, ensure that the raster data have been prepared properly (cleaned, adjusted, corrected) by using the raster file editing tools.

The **Vectorization Wizard** supports a proper selection of the vectorization parameters according to the current raster data and allows for a fast learning and for quickly becoming an expert.

Vectorize and Vectorize Parameters



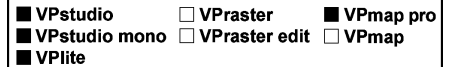
Toolbar: **Vectorization**

Menu: **Vectorize ► Vectorize**

CMD: **VPVECTORIZE ► Dialog**

CMD: **VPVECTORIZE [NAME.PCF] [/m|Method <Value>] [/e|Exact <Value>] [/t|Threshold <Value>]**

Starting the raster-to-vector conversion on the active raster image or on a selected image. First, the parameter dialog opens for reviewing or modifying parameters, or to load a parameter file.



Clicking **OK** starts the conversion.

Using the command line the vectorization can be controlled with the following parameters:

NAME.PCF	The name of an existing parameter file
/m Method <Value>	<p><Value> controls the image characteristics:</p> <ul style="list-style-type: none"> 0: Predominantly Lines 1: Predominantly Areas 2: Mixture of Lines and Areas -1: Use the value of the image settings <p>Default: -1</p>
/e Exact <Value>	<p><Value> controls the accuracy of the vectorization:</p> <ul style="list-style-type: none"> 0: No increased accuracy 1: Increased accuracy -1: Use the value of the image settings <p>Default: -1</p>
/t Threshold <Value>	<p><Value> (in pixel) controls the process where to switch from centerline to outline vectorization.</p> <p>Default: 15</p>

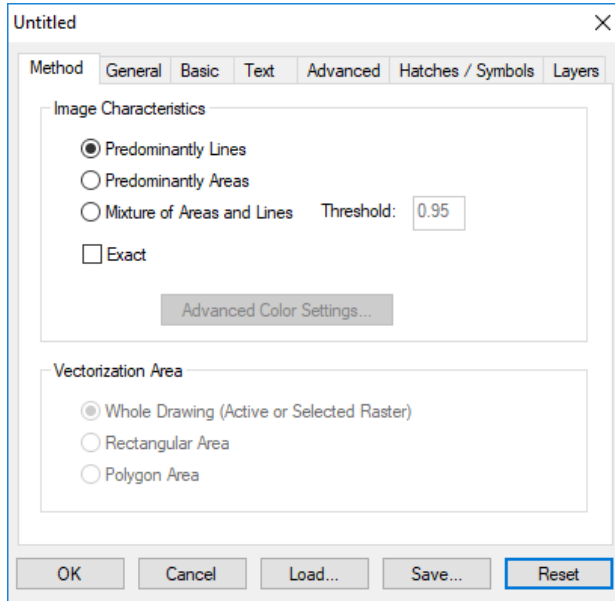
If you only want to view or edit the vectorizing parameters without starting the vectorization, use this function to open the parameter dialog:



Toolbar: **Vectorization**

Menu: **Vectorize ► Vectorize Parameter...**

CMD: **VPVECPARAMETERS ► Dialog**



There are seven tabs that are used for defining or selecting all necessary parameters for the vectorization and post processing:

- **Method**
- **General**
- **Basic**
- **Text**
- **Advanced**
- **Hatches/Symbols**
- **Layers**

Using **Save** and **Load** parameter settings can be saved for later use, including the vectorization mode. By default, settings are saved in the SUPPORT subdirectory with a **.PCF** extension and can be re-loaded. Settings of the function **Advanced Image Setting...** can be saved and re-loaded in the corresponding dialog.

A loaded parameter file overwrites all currently active parameters in the parameter dialog. When a parameter value of a loaded parameter file is changed manually, the name of the active parameter file will be set in parentheses.

Reset restores all parameter values to their default settings and deletes the current parameter file name replacing it with **Untitled**.

Standard Parameter Files

VP software contains some standard parameter files matching the raster sample files for conversion. Also, there are combinations created for originals of the following types:

- **Mechanical** (MECH.PCF)
- **Architecture** (ARCH.PCF)
- **Cadastral maps** (GROUND.PCF)
- **Geological maps** (GEO.PCF)

These parameter files can be loaded and may be easily modified to meet your drawings' peculiarities. They should be saved with a new name. The files reside in the **SUPPORT** subdirectory.

Method Tab

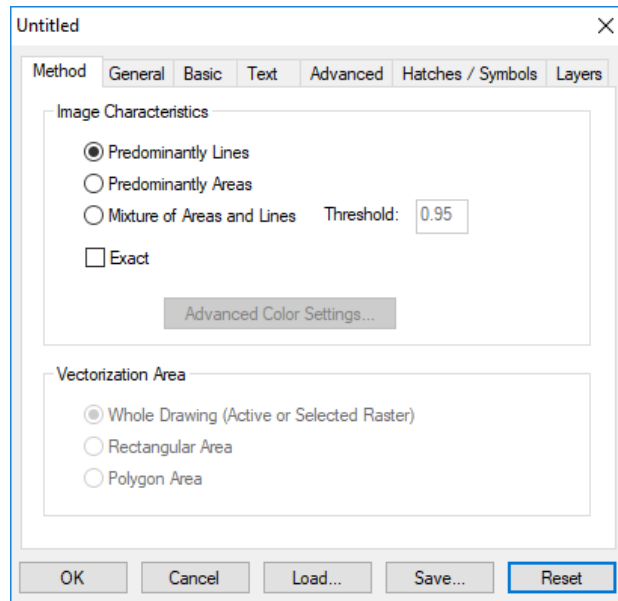


Image Characteristics (Vectorization Method)

Three vectorization methods are available:

- **Predominantly Lines**
- **Predominantly Areas**
- **Mixture of Areas and Lines**

Default: **Predominantly Lines**

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Predominantly Lines (Centerline Vectorization): The center of each raster structure is determined by thinning inwards from the edges and converting the remaining raster structure as line chains consisting of individual line segments. In the case of raster structures having a width of more than 62 pixels, centerline vectorization switches to outline vectorization for the remaining area, i.e. after thinning inwards by 62 pixels. These remaining raster structures are represented by their contours.

In general, this is the optimum vectorization method for technical drawings.



In order to avoid objects from "hollowing out" when using this method do not scan above 600 dpi, since raster line widths can easily exceed the 62 pixel threshold.

Predominantly Areas (Outline Vectorization): Converts the contours of raster structures to line chains, creating line structures which wrap around all of the raster elements. **This vectorization method suits best for the conversion of originals containing filled areas, text, or logos.**

Mixture of Areas and Lines (Centerline/Outline): Switching permanently between centerline and outline vectorization methods can be set to any threshold value. **A typical application for this combined method would be the conversion of architectural floor plans, in which main walls may be represented by broad, filled areas.**

Threshold: This parameter can only be set when selecting **Mixture of Areas and Lines** (centerline/outline vectorization). The value (in units) determines the turning point from where raster structures are no longer converted to centerlines, but instead will be represented by their contours.



The threshold value must be carefully calculated. It should be a value larger than the largest line width (for centerline recognition) yet, small enough to avoid centerlining objects that should be outlined. Otherwise, you run the risk of constantly switching between centerline and outline vectorization for the same element, due to varying widths. Also, the value correlates with the scanning resolution, since it is internally converted into pixels.

Range: 0.4 - 3 mm (0.015 - 0.1 inch)

Default: 15 pixels = 1.27 mm (0.05 inch) @ 300 dpi

Exact {on/off}: The standard vectorization process will straighten vectors during the thinning process in order to reduce the amount of generated data. This happens especially across edges and along contours with the area vectorization. An additional setting **Exact** to **on**, the thinning process follows exactly the raster structure. This results in significantly increasing file sizes!

Activating this parameter can be useful when vectorizing text outlines or in GIS applications where a high precision with contour lines is required.

Default: off

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Advanced Color Settings

This button becomes active if the raster file is in gray scales or colors. In this case, clicking the button opens the dialog **Advanced Image Settings** allowing to define a color or a color pattern as **Active Color**. For details see **Section 4**.

On leaving the **Image Settings** dialog you return to the **Vectorization Parameter** dialog.



An Active Color should be defined previous to a vectorization of grayscale or color images. Otherwise, it will be defined automatically by the program (automatic binarization).

Vectorization Area

The vectorization area can only be set when the dialog is started with **Vectorize**.

The available options are:

- **Whole Drawing**
- **Rectangular Area**
- **Polygon Area**

Especially for large originals, the rectangular area option enables you to "test" (on one or several sections) the correct parameter settings for best results before converting the entire drawing.

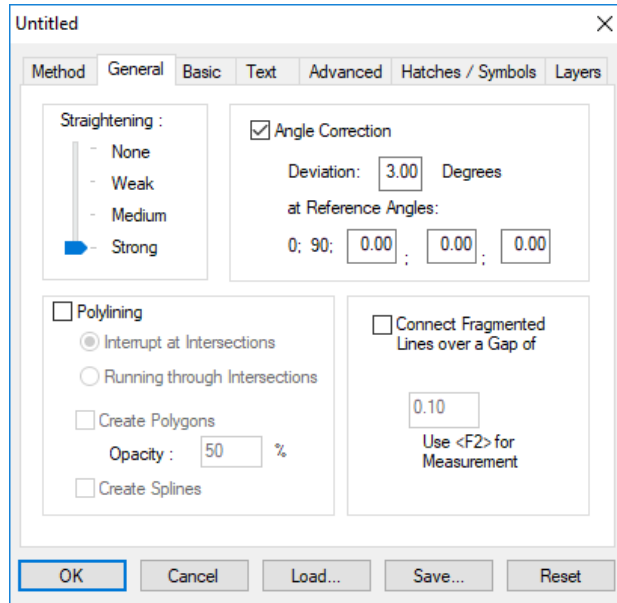
A selected **Vectorization Area** may enclose multiple raster images.



This selection will not be saved to the PCF file!

Default: **whole drawing**

General Tab



These parameters control the degree of line straightening, angle correction, line chaining, gap jump, and grid snap.

Straightening

This parameter affects the quality of **line straightening** as well as **circle**, **ellipse**, and **arc extraction**. The following options are available:

- **None**
- **Weak**
- **Medium**
- **Strong**

None: The **None** setting will not execute any straightening. While it provides the highest degree of precision in the correspondence of raster structure and vector data (especially with the parameter **Exact** set to "on"), **the recognition and extraction of geometric elements is not possible**. This setting is recommended for contour maps (GIS) and artistic artwork (i.e. logos) when the **Line Chaining** parameter is used to generate polylines.

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Strong: This setting enforces the extraction of as many long, straight lines (long 2-point lines), circles, and arcs as possible. The tolerance range is expanded to favor a greater degree of extraction, particularly for architectural and engineering drawings.

Weak or Medium: This setting aims for a compromise between the extraction of lines, circles, and arcs versus a congruence with the raster image. This usually leads to the generation of an increasing number of fragmented line segments. Moreover, arc elements may be generated instead of a circle, especially when the raster circle does not have an even radius.



A setting of **Strong** or **Medium** is especially suitable for originals which are predominantly orthogonal and which are not too dense regarding their information structure (mechanical engineering, architecture, etc.).

Default: **Strong**

Angle Correction {on/off}

Despite the necessary deskewing of the raster file to a reference line using the raster editor, parallel lines are usually not exactly parallel, horizontal, or vertical. The **Angle Correction** function corrects the individual angle of lines within the drawing having an angle offset smaller than **Deviation** at the angles **0°** and **90°**. There are **three additional angles** of your choice to define the correction for.

Default: **off**

Deviation: Determines the maximum deviation from the reference angle that is to be corrected. Since substantial angle deviations may occur in individual line segments, the value should usually be set to **2 - 5°**. If the value is too high, you run the risk of snapping lines that should run within this angle setting without correction.

Default: **3°**

Reference Angles: When angle correction is on, **0°** and **90°** are the default angles. There are three other possible angles that can be entered or measured using **[F2]**.

Range: **0° - 90°**

Default: **0°, 0°, 0°**

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Polylining {on/off}

This setting controls the chaining of individual lines pieces into polylines. In the case of geographic contour maps, for example, polylines are generated if **Polylining** is activated. The best possible conformity with the original is achieved when **Straightening** is set to **None** or **Weak** with **Exact** set to **on** (however, this creates large vector files because of the large number of vertices!).

Default: **off**

Interrupt at Intersections: Limits chaining to areas between intersections if **Line Chaining** is **on**.

Running through Intersections: Chains lines across intersections if **Line Chaining** is **on**. The direction of the smallest angle range at an intersection will be chosen for chaining.

Default: **Interrupt at Intersections**

Create Polygons {on/off}: This parameter is used to convert closed polylines to filled polygons. The fill pattern is **SOLID** with the specified **Opacity** value.

Default: **off**
Opacity: **50%**

Create Splines {on/off}: This parameter is used to create splines instead of polylines.

Default: **off**

Connect Fragmented Lines over a Gap of: {on/off}

Small breaks in the raster data, due to faded and old originals, can be joined together in lines, circles, and arcs up to a reasonable distance. A high value setting will result in false lines or arcs.

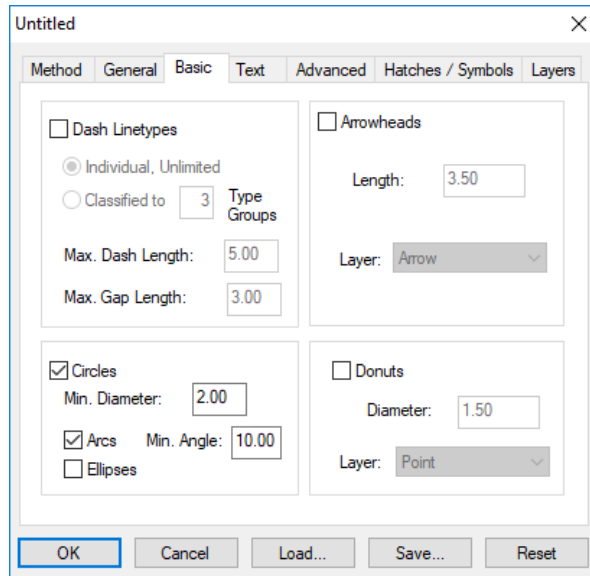
Default: **off**
Value: **0.1 mm, 0.004 inch**



If the value is set too high, neighboring vectors can be connected! To correct this, simply lower the distance length and run the post processing again.

Basic Tab

In this tab you can choose circle and arc extraction, as well as recognition of dashed and dash dotted lines, Donuts and Arrowheads.



Line Types {on/off}

Toggles the recognition of **dash dotted** and **dashed** line types **on** and **off**. An individual line type is usually generated for every non-solid line in the original. However, the number of line types can be limited by using **Classified to** for classification.

At least three partial segments are required to recognize a line type.

Default: **off**

Individual Unlimited: An individual line type is generated for each line found.

Classified to: The found lines are classified. The value for **Classified to** determines how many classes of dash dotted and dashed lines will be created. The master linetypes for the classification are extracted from the found linetypes. If linetypes are already defined in the **Linetype Manager** and those linetypes fit to the found lines, these linetypes are used.

Default: **3**

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Max. Gap Length: Defines the maximum gap length in a dashed or dash dotted line to be searched for.

Default: **3 mm or 0.1 inch**

Max. Dash Length: Defines the maximum length of a single dash element in a dashed or dash dotted line to be searched for.

Default: **5 mm or 0.2 inch**



False dashed lines could be generated in poor drawings with weak solid lines. It is best to leave this function off if the drawing to be converted only contains a few dashed line segments. After post processing, you can easily combine the line pieces to one line and then convert it into a dashed or dash dotted line.

On the other hand this function can help to assemble broken line pieces in poor raster data to a dashed line which can easily be converted into a solid line.

Circles {on/off}

Circles are recognized having a diameter exceeding the **Min. Diameter**.

Default: **2 mm or 0.1 inch**

Default: **on**

Arcs {on/off}

Enables the recognition of arcs. In order to avoid unwanted arc interpretations, arc recognition is determined by the **Min. Angle** parameter. Only arcs with a greater angle than the entered value are recognized as arcs.

Range: **0° - 90°**

Default: **10°**

Default: **on**

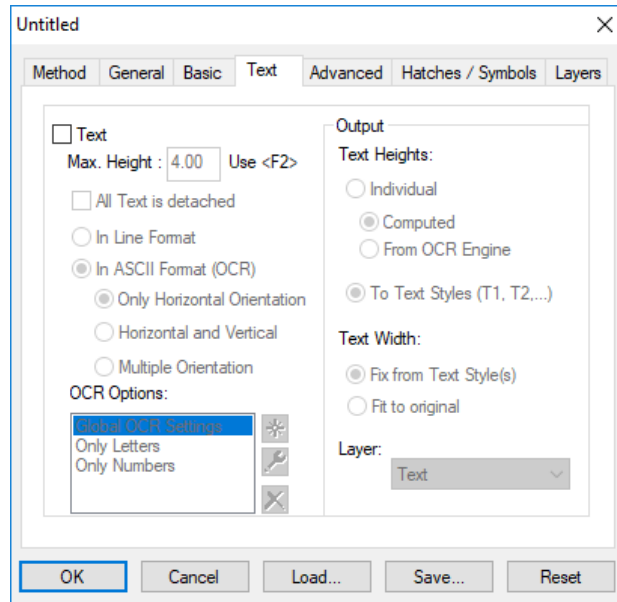
Ellipses {on/off}

Enables the recognition of ellipses and elliptic arcs.

Default: **off**

Text Tab

In this tab you can set the options for the text recognition (OCR):



Text {on/off}

With **Text** set to **on** either text recognition (OCR) or text separation can be selected. Choose the maximum text height for searching text structures up to this height.

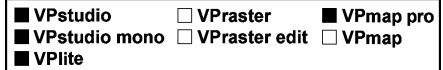
Limiting the search to **Horizontal and Vertical** or **Only Horizontal** text will significantly increase the accuracy of recognition and the search speed. It should be selected whenever possible. This also applies for smaller **Max. Text Height** settings.

Default: **off**

The following parameters control which texts should be looked for and recognized.

Max. Text Height: Defines the maximum size of the isolated structures to be processed during separation or recognition. Use **[F2]** for accurate measurement. Set the text height to a value representing the majority of the text in the document - do not use singular or only a few large text strings as a reference!

Default: **4.0 mm, 0.15 inch**



All Text is detached {on/off}: Only text will be taken that is not connected to any other structure e.g. long lines.

Default: **off**

In Line Format: The vector data (lines, circles, arcs) separated by the **Max. Text Height** parameter are displayed in the selected layer (Default: "Text") as "pseudo text", i.e. the entities are grouped to a block. This block can be edited (especially replaced by any ASCII characters) with the **Review Text** function.

Default: **off**

In ASCII Format (OCR): The detected raster text is interpreted using the OCR function and converted into ASCII text strings.

Default: **on**

Text Search Direction: The search for different text orientations can be limited. The more directions are enabled, the longer the text interpretation process will take (only available with **Text Recognition**). Direction selections are:

- **Only Horizontal**
- **Horizontal and Vertical**
- **Arbitrary Direction**

OCR Options (Text recognition): Specify the settings for the text recognition. Select from predefined and user defined settings for the recognition (OCR, e.g. only numbers, special characters). New settings are saved and will be available for other projects as well.

Predefined settings are:

Global OCR Settings: The currently specified OCR settings (can be changed with **Options – OCR Settings**, see **Chapter 4**).

Only Letters: All letters, but no numbers (digits) are recognized.

Only Numbers: Only numbers are recognized.

Default: **Global OCR Settings**



The **Global OCR Settings** reflect the current OCR settings. In case these settings are modified between two vectorization processes, the result of the second process might differ from the first one.



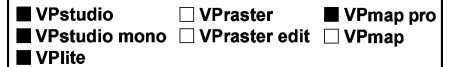
Create new setting . After specifying a name the dialog for the **OCR Settings** will show up.



Opens the dialog for the **OCR Settings** to modify the selected settings.



Delete the selected settings.



Output

The following parameters control the creation of text entities.

Text Heights

Individual: Each text element has its own text height. Its Value is This value is either **Computed** from the raster data or the value returned **From OCR Engine** is taken. In the later case text heights tend to be larger, nevertheless they fit well if only upper case letters and numbers are recognized.

To Text Styles: If not already defined up to 6 text styles will be generated: **T1** (1.8 mm), **T2** (2.5 mm), **T3** (3.5 mm), **T4** (5 mm), **T5** (8 mm), and **T6** (10 mm). The height/width ratio is 1.0 and the font specified in the **Systems Settings** (see **Chapter 4**) is assigned. In case that the styles T1-T6 already exist there values are not modified.

The recognized texts will be assigned to the best fitting text style and its height is set to the corresponding value.

Default: **To Text Styles**

Text Width: The height/width ratio of the assigned text style is either accepted (**Fix from Text Style(s)**) or calculated for each text from the OCR result (**Fit to original**).

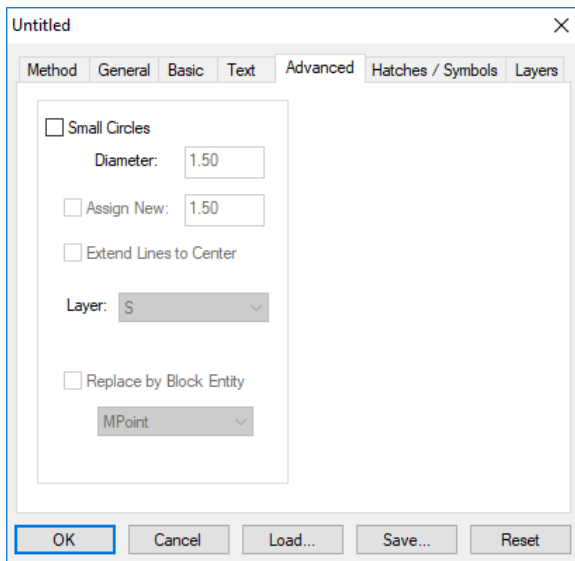
Default: **Fix from Text Style(s)**

Layer: A Layer can be selected where all recognized/separated text will reside.

Default: **Text**

Advanced Tab

In this tab parameters for the recognition of small circles, dimension arrows (arrowheads), and donuts are set.



Small Circles {on/off}

This option has been specifically designed for the recognition of small circles up to a diameter of approximately 2 [mm] or 0.08 [inch], corresponding to approximately 25 pixels at 300 dpi with increased tolerance. Arcs spanning an angle larger than 270° are closed to form full circles.

Default: off

Diameter: Enter the average diameter of circles to be recognized.

Default: 1.5 mm or 0.06 inch

Assign New {on/off}: A new diameter can be assigned to recognized circles.

Default: 1.5 mm or 0.06 inch

Extend Lines to Center {on/off}: This option extends lines to the center of a small circle which actually end on the circle, but point at the circle's center.

Default: off

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

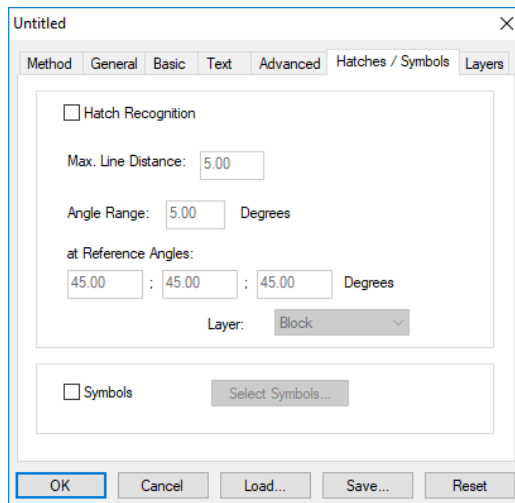
Layer: A layer can be selected where all recognized small circle elements will reside.

Default: S

Replace by Block Entity {on/off}: Each recognized small circle will be replaced by a block. Instead of the default block **MPOINT** any block can be used.

Default: off

Hatches/Symbols Tab



Hatch Recognition {on/off}

This option toggles the search for hatch patterns to **on** or **off**. The lines assigned to a hatch pattern are collected and saved in a **Block**. A minimum of five parallel lines are required to create a hatch block. In addition, a hatch is only recognized if the angular deviation of its lines relative to one of the three **Reference Angles** is less than the parameter **Angle Range** and the angle tolerance of the individual elements does not exceed 5°. Also, all lines must have connections to the respective border element (other lines, arcs, circles).

Default: off

Max. Line Distance: This value defines the maximum distance between parallel lines forming a hatch.

Default: 5 mm or 0.2 inch

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Angle Range: The offset (+/-) from any of the three reference angles specifies the angle tolerance while searching for a hatch.

Range: 5 - 35°
Default: 5°

Reference Angles: A maximum of three base angles can be entered.

Defaults: 45°, 45°, 45°

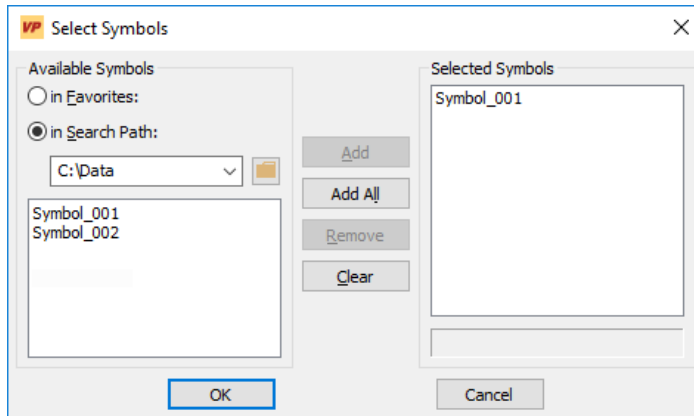
Layer: A layer can be selected where all recognized hatches will reside.

Default: Hatch

Symbols {on/off}

Use this option to turn **on** and **off** searching for symbols during vector post processing.

Clicking on **Prototypes** opens the dialog box for the selection of symbols for the search process.



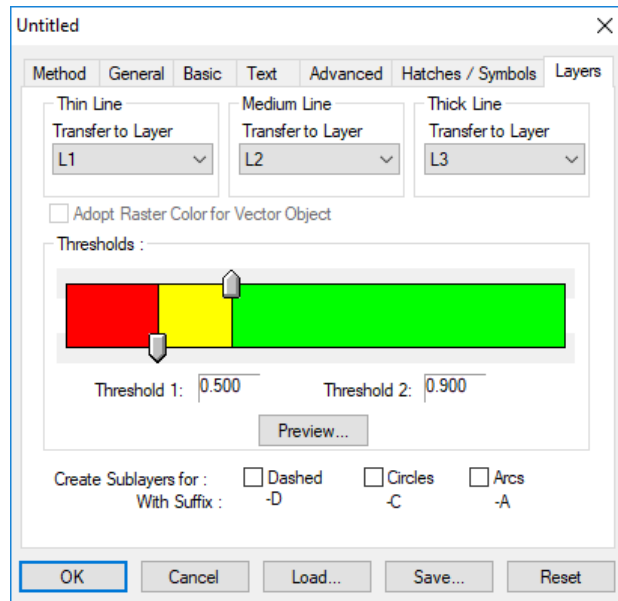
Available Symbols: Lists the available symbols. For a search process you can select symbols from **Favorites** or from the current **Search Path**.

Selected Symbols: Lists the selected symbols for the search process. Use **Add** and **Remove** to modify the selection.

For information on creating prototypes see **Section 14**.

Layers Tab

The **Layers** tab allows you to assign **three layers** to **three line width classes**. The dynamic preview enables an individual setting of the line width classes according to the current raster file.

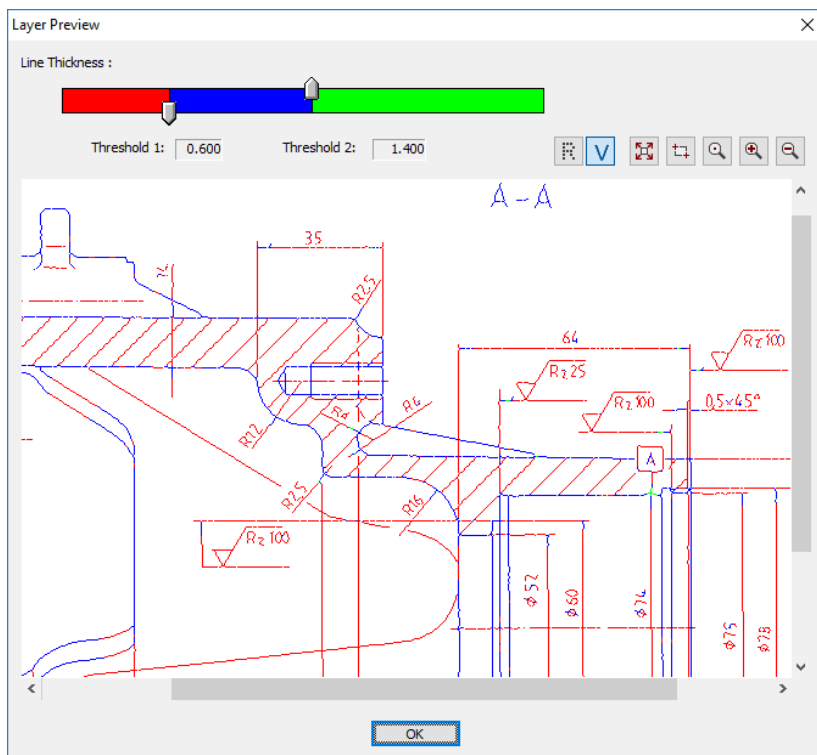


The values for the **class limits** (thresholds) determine the maximum widths up to which lines, circles, arcs, etc. are assigned to the adequate layers. The layer limits can be changed using the slider controls. **It is not possible to enter threshold values via keyboard.**

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Preview

The preview offers a practical, simple, and precise on-screen setting of the limits. You can switch raster or vector layers on and off for a better viewing of details. Pan and zoom functions are available. By changing any of the limits using the sliders you can immediately view the results.



Layers

Each of the three line width classes **Thin Line**, **Medium Line** and **Thick Line** can be assigned to specific layers. Select **"Other..."** from the Layer list to start the **Layer Manager** (see **section 4**) and to create new layer(s).

Default: L1, L2, L3

Adopt Raster Color for Vector Objects {on/off}

This option is only available when processing colored images. When set to **on** the generated vector objects will not have the default color **By Layer**, but the color of the underlying raster pixel structure. To indicate this, the colors in the slider layer display appear hatched instead of solid.

Default: off

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Create Sublayers for:

For each of the three base layers (line width classes) sub-layers for arcs, circles, and line types other than solid may be created if such entities are recognized with the corresponding width during the vectorization process. The indicated suffixes are appended to the corresponding base layers.

Default: **off**

Vectorize Contour

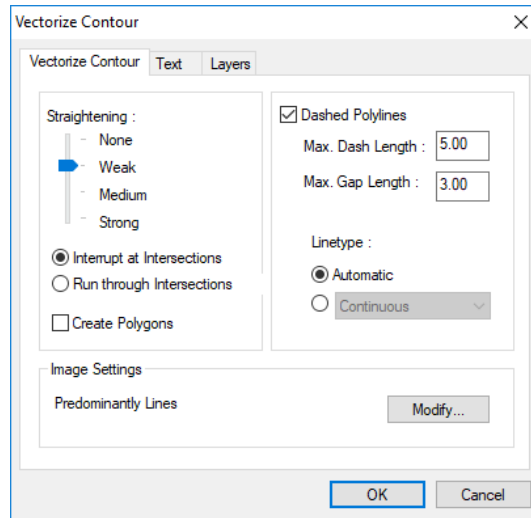


Toolbar: **Vectorization**

Menu: **Vectorize ► Vectorize Contour**

CMD: **VPVECCONTOUR ► Dialog**

This function has been designed for an easier automatic vectorization of contour maps. Some of the above **Vectorization Parameters** are readily predefined. Only Lines and Polylines will be created. Also, a special recognition option for **Dashed Polylines** is available.



Straightening

This parameter affects the quality of **line straightening**. The following options are available:

- **None**
- **Weak**
- **Medium**
- **Strong**

None: The **None** setting will not perform any straightening. However, it provides the highest degree of precision in the correspondence of raster structure and vector data (especially with the parameter **Exact** set to "on" in **Image Settings**)

Strong: This setting enforces the extraction of polyline segments as long as possible. The tolerance range is expanded to favor a higher degree of extraction, particularly for architectural and engineering drawings.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Weak or Medium: This setting aims for a compromise between the extraction of polylines versus a high correspondence with the raster image. This usually will lead to the creation of an increasing number of polyline segments.

Interrupt at Intersections: Limits chaining to areas between intersections.

Running through Intersections: Chains lines across intersections. The direction of the smallest angle range at an intersection will be chosen for chaining.

Default: **Interrupt at Intersections**

Create Polygons {on/off}: This parameter is used to convert closed polylines to filled polygons. The fill pattern is **SOLID**.

Default: **off**

Image Settings

The actual **Image Characteristics** are displayed. **Modify** will pop up the **Image Settings** dialog for modifications. For colored images the **Foreground** and **Background Definitions** can also be modified here.

Dashed Polylines {on/off}

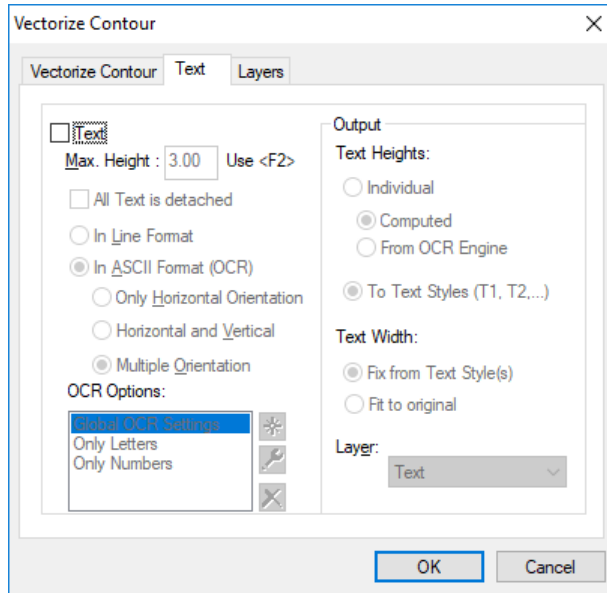
Dashed Polylines will be searched when set to **on**. The function is not limited to straight lines and dashes may have any shape. With **Max. Dash** and **Gap Length** the maximum length of a single polyline and the maximum distance between the end points of two polylines which will be chained to a dashed polyline can be specified.

The **Linetype** of detected **Dashed Polylines** will be generated as **Automatic** due to the detected dash-gap sequences, or as **Fixed** with the specified Linetype.

Default: **on**
Max. Dash Length: **5 mm or 0.2 inch**
Max. Gap Length: **3 mm or 0.1 inch**
Linetype: **Automatic**

Text Tab

Setting up options for text recognition (OCR):



Text {on/off}

When **Text** is activated a text recognition (OCR) or text separation (in Line Format) can be selected. The text search is controlled with a value for the maximum text height.

Limiting the search to **Horizontal and Vertical** or **Only Horizontal** text will significantly increase the accuracy of recognition and the search speed. It should be selected whenever possible. This also applies for smaller **Max. Text Height** settings.

Default: **off**

Recognition: The following parameters control which texts should be looked for and recognized.

Max. Text Height: Defines the maximum size of the isolated structures to be processed during separation or recognition. Use **[F2]** for accurate measurement. Set the text height to a value representing the majority of the text in the document - do not use singular or only a few large text strings as a reference!

Default: **4.0 mm, 0.15 inch**

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

All Text is detached {on/off}: Only text will be taken that is not connected to any other structure e.g. long lines.

Default: **off**

In Line Format: The vector data (lines, circles, arcs) separated by the **Max. Text Height** parameter are displayed in the selected layer (Default: "Text") as "pseudo text", i.e. the entities are grouped to a block. This block can be edited (especially replaced by any ASCII characters) with the **Review Text** function.

Default: **off**

In ASCII Format (OCR): The detected raster text is interpreted using the OCR function and converted into ASCII text strings.

Default: **on**

Text Search Direction: The search for different text orientations can be limited. The more directions are enabled, the longer the text interpretation process will take (only available with **Text Recognition**). Direction selections are:

- **Only Horizontal**
- **Horizontal and Vertical**
- **Arbitrary Direction**

OCR Options (Text recognition): Specify the settings for the text recognition. Select from predefined and user defined settings for the recognition (OCR, e.g. only numbers, special characters). New settings are saved and will be available for other projects as well.

Predefined settings are:

Global OCR Settings: The currently specified OCR settings (can be changed with **Options – OCR Settings**, see **Chapter 4**).

Only Letters: All letters, but no numbers (digits) are recognized.

Only Numbers: Only numbers are recognized.

Default: **Global OCR Settings**



The **Global OCR Settings** reflect the current OCR settings. In case these settings are modified between two vectorization processes, the result of the second process might differ from the first one.



Create new setting . After specifying a name the dialog for the **OCR Settings** will show up.



Opens the dialog for the **OCR Settings** to modify the selects settings.



Delete the selected settings.

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Output

The following parameters control the creation of text entities.

Text Heights:

Individual: Each text element has its own text height. Its Value is This value is either **Computed** from the raster data or the value returned **From OCR Engine** is taken. In the later case text heights tend to be larger, nevertheless they fit well if only upper case letters and numbers are recognized.

To Text Styles: If not already defined up to 6 text styles will be generated: **T1** (1.8 mm), **T2** (2.5 mm), **T3** (3.5 mm), **T4** (5 mm), **T5** (8 mm), and **T6** (10 mm). The height/width ratio is 1.0 and the font specified in the **Systems Settings** (see **Chapter 4**) is assigned. In case that the styles T1-T6 already exist there values are not modified.

The recognized texts will be assigned to the best fitting text style and its height is set to the corresponding value.

Default: **To Text Styles**

Text Width: The height/width ratio of the assigned text style is either accepted (**Fix from Text Style(s)**) or calculated for each text from the OCR result (**Fit to original**).

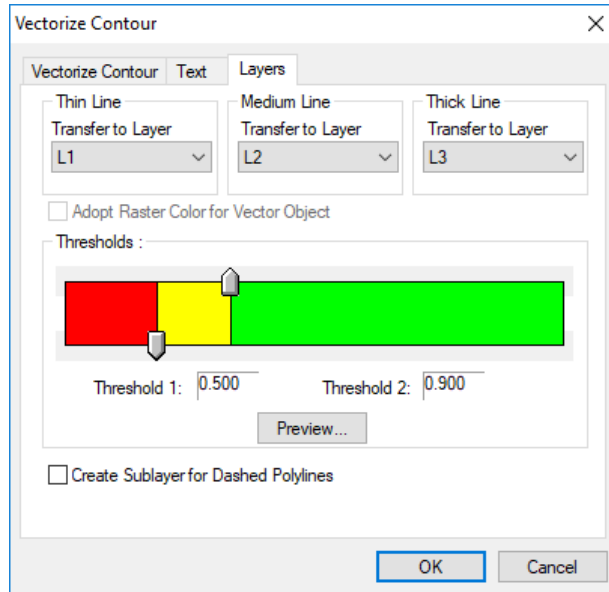
Default: **Fix from Text Style(s)**

Layer: A Layer can be selected where all recognized/separated text will reside.

Default: **Text**

Layers Tab

The **Layers** tab allows for assigning **three layers** to **three line width classes**. The dynamic preview enables an individual setting of the line width classes according to the current raster file.

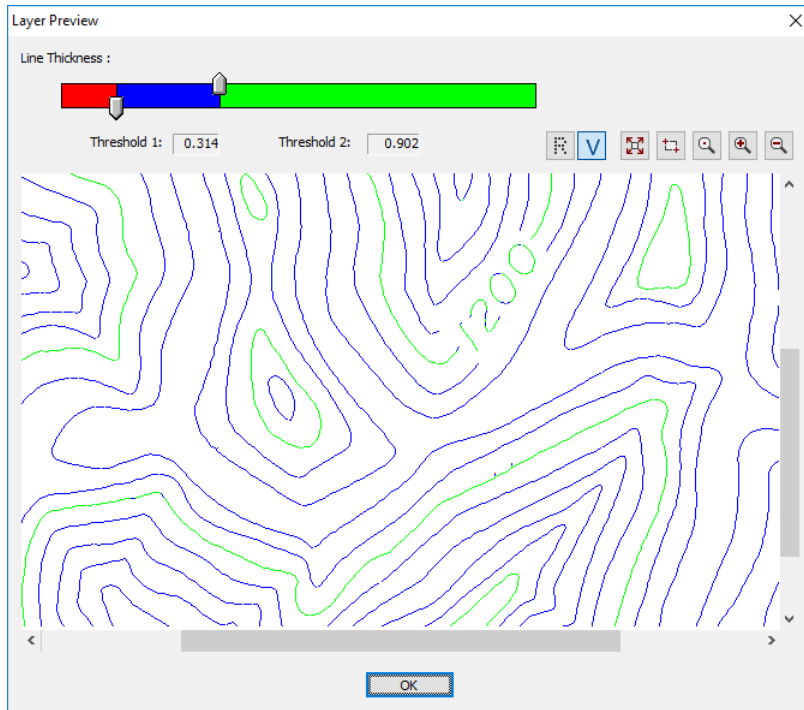


The values for the **class limits** (thresholds) determine the maximum widths up to which lines, circles, arcs, etc. are assigned to the appropriate layers. The layer limits can be changed using the slider controls. **It is not possible to enter threshold values via keyboard.**

Preview

The preview offers a practical, simple, and precise on-screen setting of the limits. You can switch raster or vector layers on and off for a better view of details. Pan and zoom functions are also available. By changing any of the limits using the sliders you can immediately see the results.

- | | | |
|--|--|---|
| <input type="checkbox"/> VPstudio | <input type="checkbox"/> VPraster | <input checked="" type="checkbox"/> VPmap pro |
| <input type="checkbox"/> VPstudio mono | <input type="checkbox"/> VPraster edit | <input type="checkbox"/> VPmap |
| <input type="checkbox"/> VPlite | | |



Layers

Each of the three line width classes **Thin Line**, **Medium Line**, and **Thick Line** can be assigned to specific layers. Select **"Other..."** from the layer list to start the **Layer Manager** (see **section 4**) and to create new layer(s).

Default: L1, L2, L3

Adopt Raster Color for Vector Objects {on/off}

This option is only available when processing colored images. Then, if set to **on**, the generated vector objects will not have the default color **By Layer**, but the color of the underlying raster pixel structure. To indicate this, the colors in the slider layer display appear hatched instead of solid.

Default: off

Create Sublayers for Dashed Polylines:

For each of the three base layers (line width classes) sub-layers for dashed Polylines may be created if such entities are recognized with the corresponding width during the vectorization process. The indicated suffixes will be appended to the corresponding base layers names.

Default: off

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Vectorization Wizard

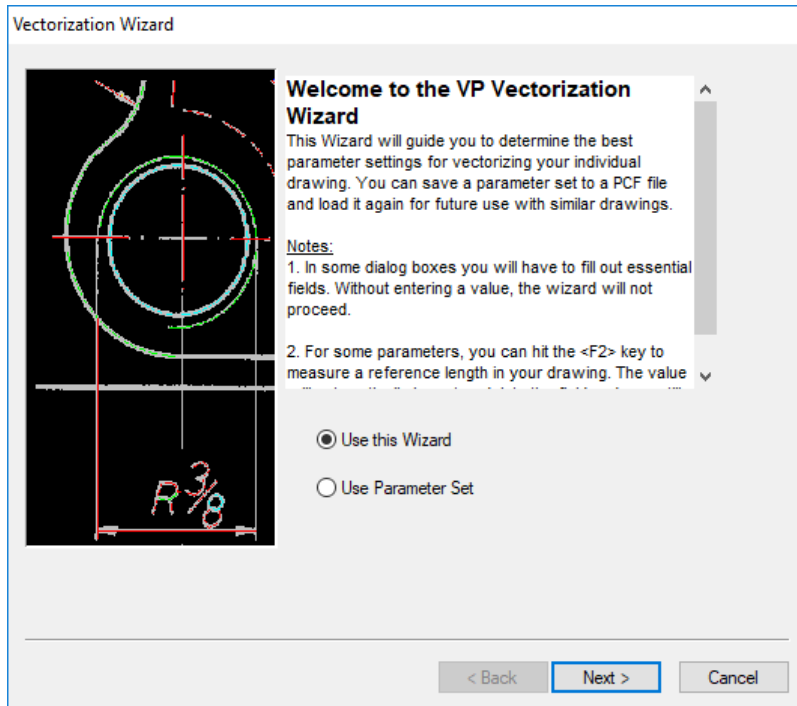


Toolbar: **Vectorization**

Menu: **Vectorize ► Wizard**

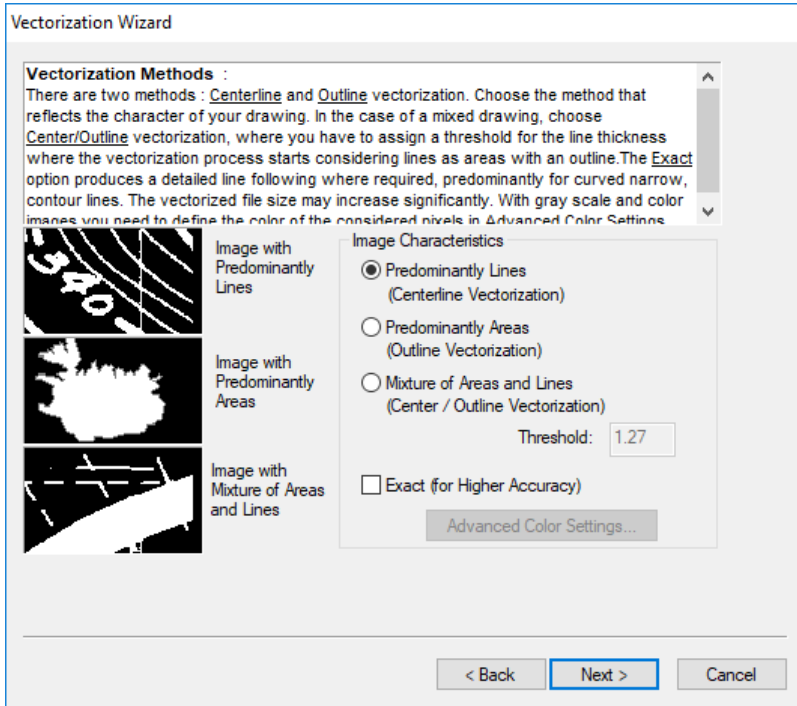
CMD: **VPVECWIZARD ► Dialog**

After loading and preparing the raster file to be vectorized click this icon. The first tableau of the Wizard appears:



Here, you can decide to use the wizard for selecting and defining all necessary parameters, or to switch to the standard parameter dialog. For detailed description of all parameter see the beginning of this section.

If you want to get the wizard support press **Next**.

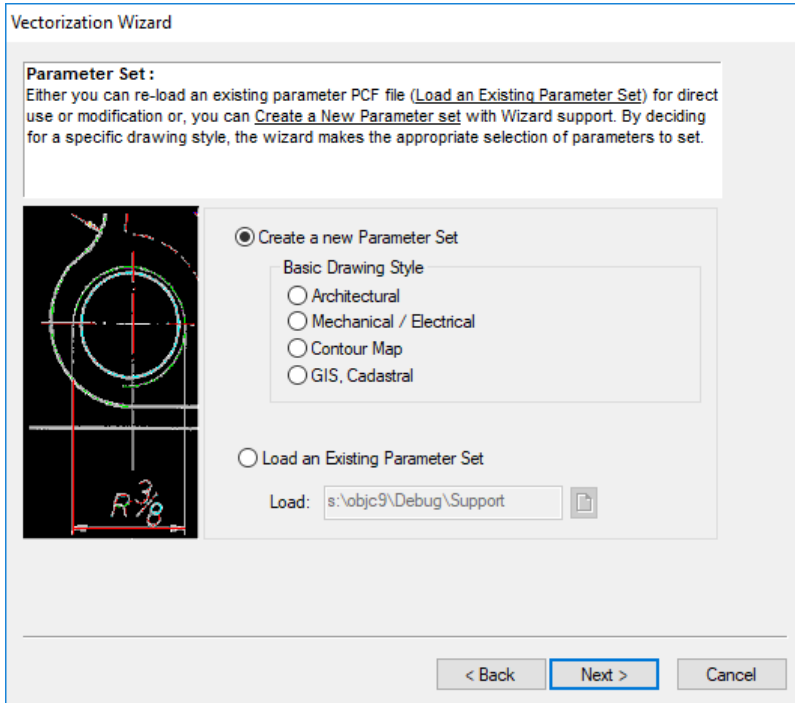


Select the Image Characteristics which best fit your current drawing with respect to the expected results. With **Mixture of Areas and Lines** set the **Threshold** to determine the line width from where raster structures are to be converted into outlines.

You may activate **Exact** for a higher accuracy. This is especially useful with maps containing narrow contour lines. However, be aware of the fact that this will result in significantly larger vector files!

Click **Next!**

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

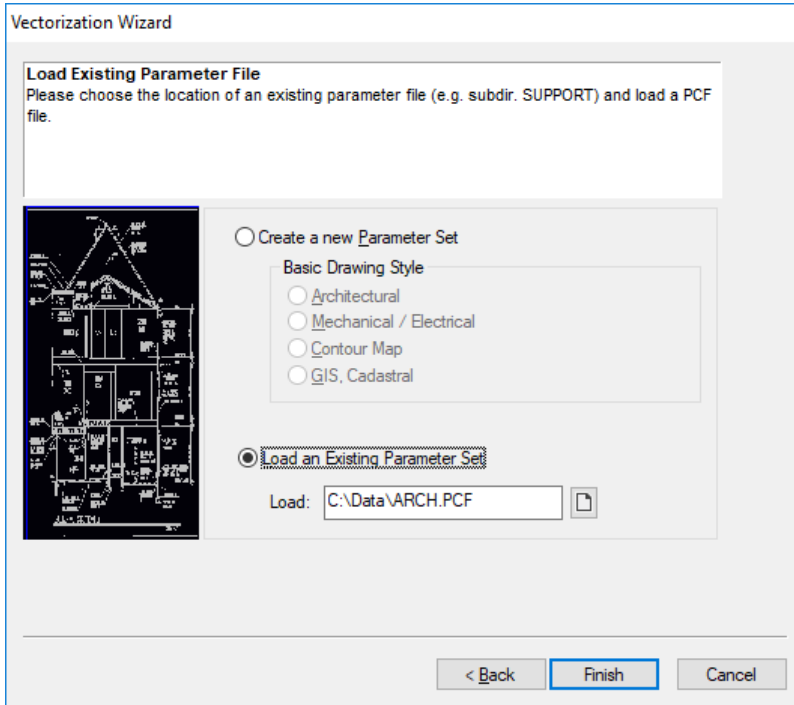


If you do not have a fitting parameter file a new parameter set needs to be created according to your current raster file. Select the **Basic Drawing Style**. Now, some parameters will be set automatically. The following tableaus will only show parameters dealing with **Mechanical/ Electrical Drawings**. If you select other drawing types, you may see different tableaus.

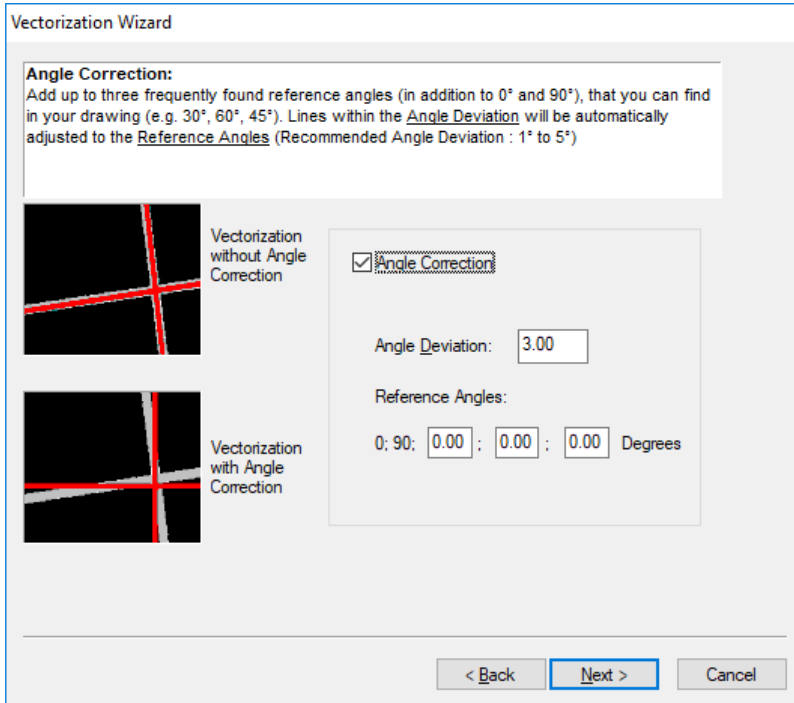
Click **Next!**

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

If you select to load a parameter file from your support directory the wizard support will come to an end. No additional selection or setting of parameters is required.



Clicking on **Finish** will bring up the **Parameter Dialog** where you can review all parameters and may modify them, if necessary.




If **Angle Correction** set to **on**, define the tolerance angle of deviation from the reference angles (here: 30°, 45°, and 60°).

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> VPstudio | <input type="checkbox"/> VPraster | <input checked="" type="checkbox"/> VPmap pro |
| <input checked="" type="checkbox"/> VPstudio mono | <input type="checkbox"/> VPraster edit | <input type="checkbox"/> VPmap |
| <input checked="" type="checkbox"/> VPlite | | |

Vectorization Wizard

Text Recognition Parameters
Choose between ASCII Format (OCR) and Line Format (raw vectors separated and combined to blocks). For ASCII recognition specify the text orientation direction(s). Less text orientations improve the recognition quality. The recognized text will be transferred to the selected layer (e.g. Text).
For speeding up the text recognition process, choose rather a smaller max. text height and convert fewer large texts manually afterwards.




Line Format

Text Recognition

- In Line Format
- In ASCII Format (OCR)
 - Only Horizontal Orientation
 - Horizontal and Vertical
 - Multiple Orientation

Max. Text Height: Use [F2]

Layer:



ASCII Format
OCR Using

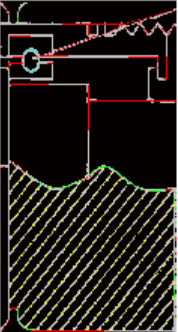
Select the **Text Recognition** and the interpretation of the found raster text strings. You need to specify (measure with **[F2]**) the maximum text height from your drawing.

- VPstudio VPraster VPmap pro
- VPstudio mono VPraster edit VPmap
- VPlite

Vectorization Wizard

Hatch Recognition Parameters

The hatch recognition helps to recognize hatched areas by searching for multiple lines (min. 3), having a spacing smaller than the Max. Line Distance and angles within the specified deviation range. The recognized hatch lines are then combined to blocks residing in the selected layer. Provide the Max. Line Distance, up to 3 Reference Angles, and an appropriate Angle Deviation (e.g. 1° - 5°).



Hatch Recognition

Max. Line Distance: Use [F2]

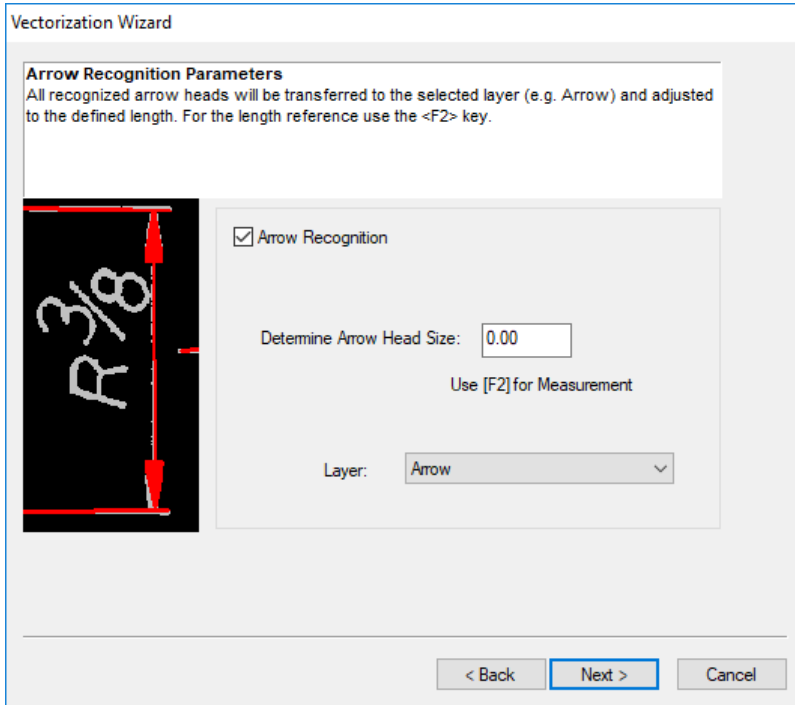
Reference Angles: Degrees

Angle Deviation: Degrees

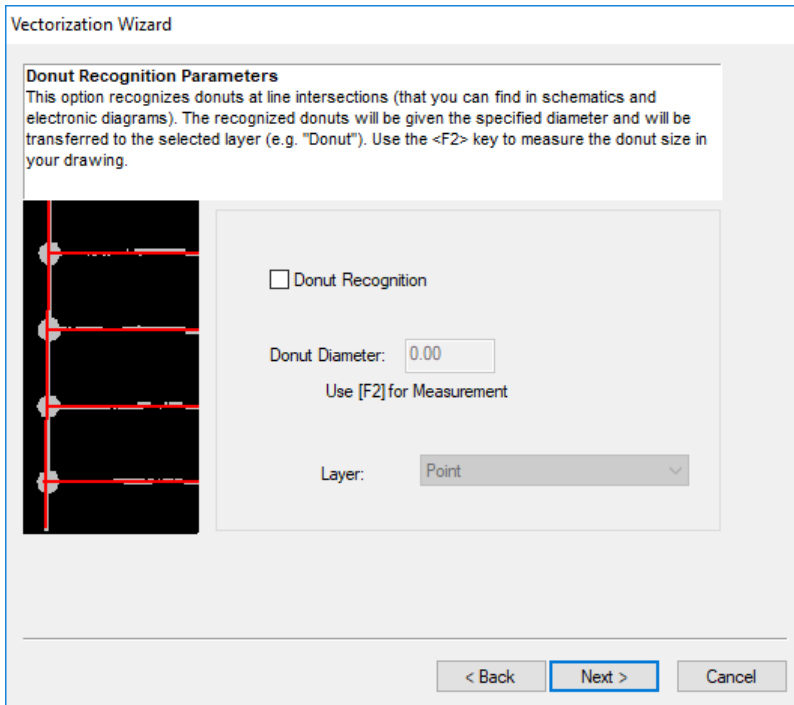
Layer:

Define the hatch parameters if to be searched for. The max. distance between parallel lines, the reference angles (here: 0° and 45°), and the tolerable deviation from those angles are required.

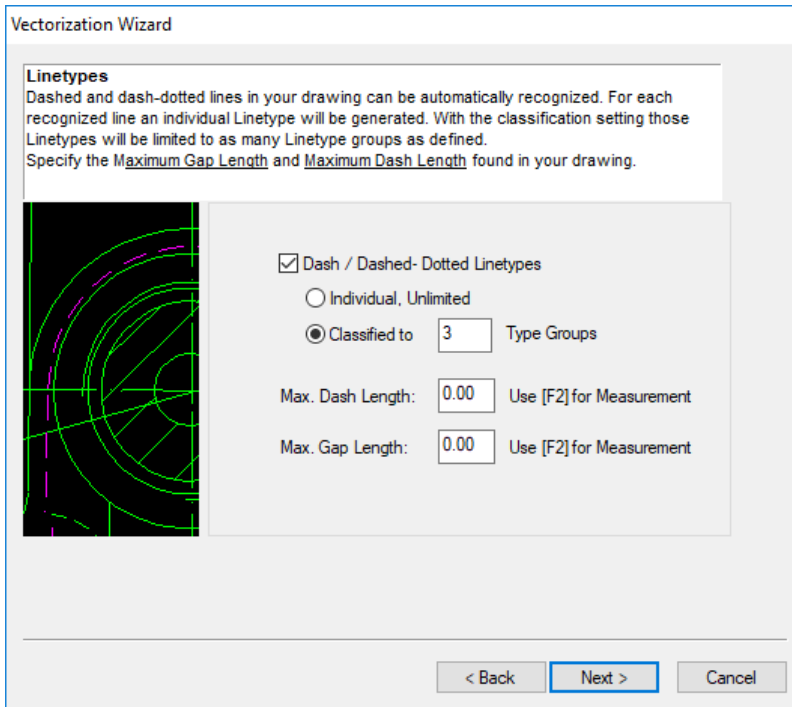
- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> VPstudio | <input type="checkbox"/> VPraster | <input checked="" type="checkbox"/> VPmap pro |
| <input checked="" type="checkbox"/> VPstudio mono | <input type="checkbox"/> VPraster edit | <input type="checkbox"/> VPmap |
| <input checked="" type="checkbox"/> VPlite | | |



Select **Arrow Recognition** if your drawing contains any and specify (measure with **[F2]**) a length.

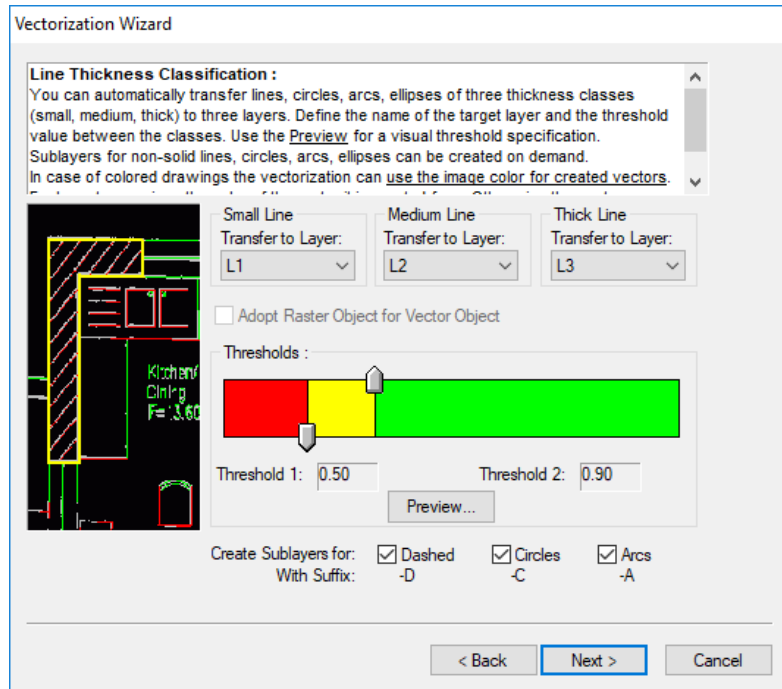


Donuts as they are used e.g. in electrical plans, can be recognized with a specified diameter (measure with **[F2]**) and will be transferred to the selected Layer.



You may want to recognize the **Dashed or Dash-Dotted Line Types**. Create either individual types or classify them into groups. Measure the maximum dash and gap lengths with **[F2]** for definition.

- VPstudio
- VPraster
- VPmap pro
- VPstudio mono
- VPraster edit
- VPmap
- VPlite



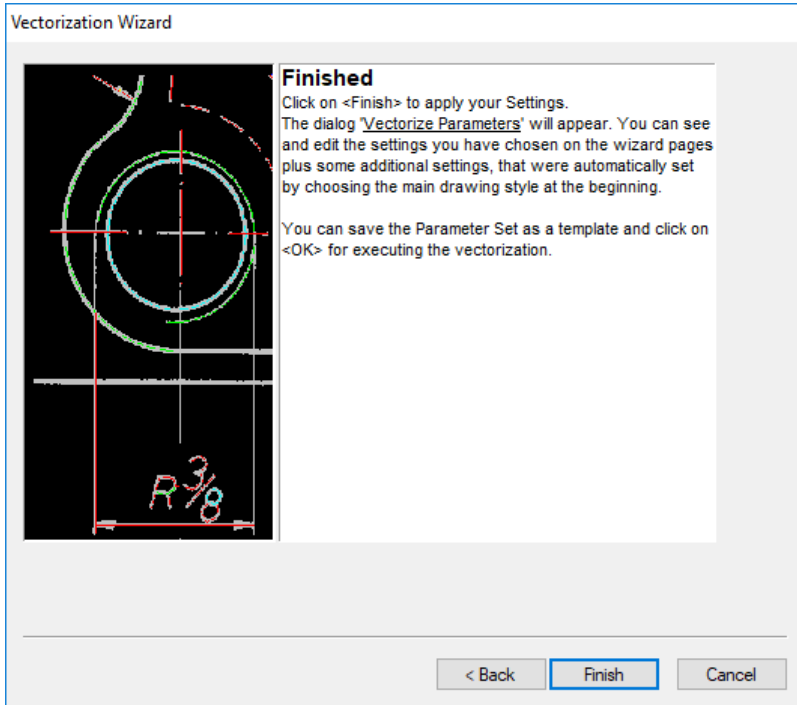
Finally, define the line width classification assigned to layers and colors. The layers **L1**, **L2**, **L3** are default layers. You may select other layers specified in the **Layer Manager**.

The **Preview** allows for a more precise and individual setting of the class limits according to your drawing.

The option **Adopt Raster Color for Vector Objects** is only available when processing colored images. When set to **on** the generated vector objects will not have the default color **By Layer**, but the color of the underlying raster pixel structure.

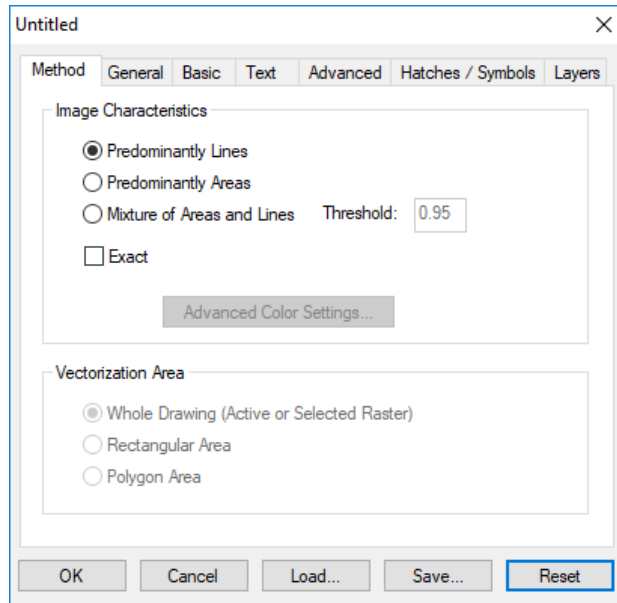
All necessary parameters have been set or selected. Additional parameters are set by the wizard automatically.

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> VPstudio | <input type="checkbox"/> VPraster | <input checked="" type="checkbox"/> VPmap pro |
| <input checked="" type="checkbox"/> VPstudio mono | <input type="checkbox"/> VPraster edit | <input type="checkbox"/> VPmap |
| <input checked="" type="checkbox"/> VPlite | | |



Clicking **Finish** brings you to the **Parameter Dialog**, now containing all set parameters. You can review (and modify) the parameter values. Also, these settings may be saved and used with similar raster files.

■ VPstudio VPraster ■ VPmap pro
■ VPstudio mono VPraster edit VPmap
■ VPlite



Click **OK** to start the conversion process.

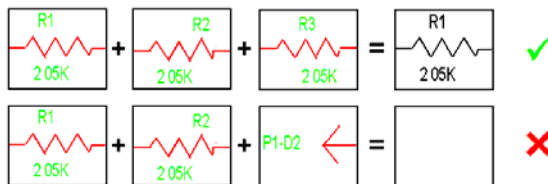
SECTION 14

SYMBOL RECOGNITION / REPLACEMENT

General

The **Symbol Recognition** function will search for vectors which form a specific pattern and will replace these with blocks. Basically, the function is referred to **symbols**. These contain one or more **search patterns** and a **replacement block**.

A **search pattern** of a symbol will be created by marking the vector pattern to search for (sample) in the drawing. When more samples are marked which differ only slightly, this will result in creating a search pattern with an increased tolerance, thus, it will help to improve on the overall search result. Please note, however, that the individual samples do not differ too much in their structure. Otherwise, the function may not be able to create a valid search pattern.



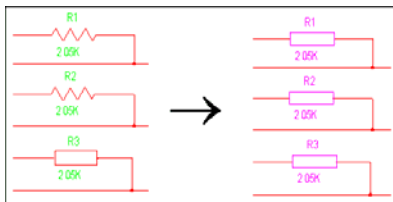
Example: correct and incorrect marking of samples for a search pattern

A symbol may contain several different search patterns. This means that with this symbol several different search patterns will simultaneously be substituted with a replacement block.



Search patterns containing a large number of vector elements will result in a long function runtime, and they may also lead to poor search results. In these cases it may be more suitable to carry out replacements manually (see Section 8: **Combine to Block**).

A **replacement block** of a symbol is a block definition which is either created from the search pattern, or it can be an existing block definition in the drawing. The design of a replacement block is independent from the search pattern. When a replacement block contains attributes, text or number information can be adopted separately for each pattern found.



Example: symbol recognition with one symbol and two search patterns

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

The symbols created will be saved as **.PSB** files and will also be available for other drawings.

There are two symbol recognition functions available: **Quick Symbol Recognition** for a simple definition of search patterns and immediate search runs.

The more advanced **Symbol Recognition** allows for additional modifications of symbols, e.g. modifying replacement blocks, add/delete search patterns, or changing search tolerances.

Quick Symbol Recognition



Toolbar: **Symbol Recognition**

Menu: **Vectorize ► Quick Symbol Recognition**

CMD: **VPSIMPLESYMBREC ► Dialog**

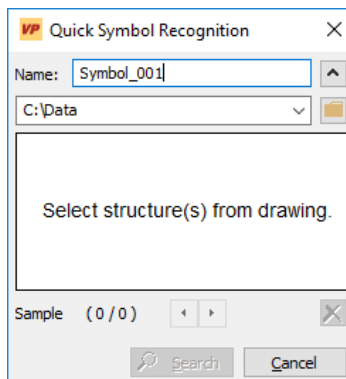
Activating the **Quick Symbol Recognition** dialog. When the dialog appears vector structures (samples) can be selected directly in the drawing. These will be displayed in the preview window. With each additional sample the tolerance for the following recognition process will be increased. However, too many samples selected may result in unwanted results. Thus, two or three different samples are recommended for best results.

Search will start the recognition process. A new symbol will be created and saved as a **PSB** file in the respective folder. The symbol contains the **search pattern** generated from all selected samples and the **replacement block** generated from the search pattern. The result of the symbol recognition will be displayed.

In case that selected samples differ considerably and no valid search pattern can be generated, a warning message appears. The recognition process may still be continued, or selected samples may be checked again and wrongly selected samples may be deleted.

For each process a new symbol and a new block definition will be generated. The advanced function **Symbol Recognition** provides processing options with already existing symbols or block definitions (see below in this section).

Quick Symbol Recognition dialog with unfolded path box for symbol files:



<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		


Name

Name of symbol which will be saved to the symbol folder. A default name will be assigned and may be changed individually.

  On/off display for symbol folder.



Symbol Folder


Folder location for symbols. The path may be entered directly or browsed. The dropdown list displays the history of selected paths.

 Browse for a folder.

Sample

Displays the number of samples selected for a search pattern.

  Browsing selected samples forward/back.

 Deleting the sample displayed.

Symbol Recognition



Toolbar: **Symbol Recognition**

Menu: **Vectorize ► Symbol Recognition**

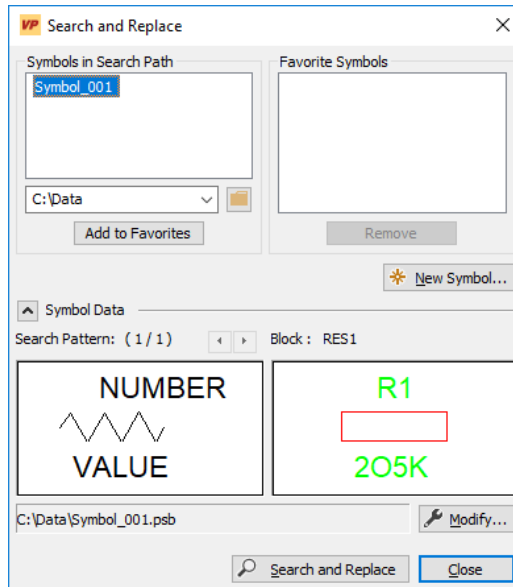
CMD: **VPSYMBREC ►** Dialog

CMD: **VPSYMBREC** [**<NAME PSB>**, **<NAME PSB>**, **<NAME PSB>**, ...]

When the function is activated with symbol files (search patterns) the symbol search will start immediately.

Example: `vpsymbrec "d:\symbols\res1.psb","d:\symbols\res2.psb"`

Without any parameters entered, a dialog opens where symbols (search patterns) can be organized and selected for a search process.



Symbols can be selected from the search path or from the list of favorite symbols. To select multiple symbols at the same time use **[Ctrl]** or **[Shift]** when selecting. Symbols in the favorites list are permanently available, independent from the current search path.

With no symbol or more than one symbol is selected per list, the preview display is inactive.

Symbol Data

Displays **Search Pattern(s)** and the belonging replacement block of the selected symbol. If the symbol contains several search patterns these can be viewed individually. The saving location of the symbol file is indicated. Use **Modify Symbol** to edit the symbol (see below).



Go to next or previous symbol.

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Symbol in Search Path

Displays all symbols (*.psb files) in the current path. Enter a path directly or browse. In a dropdown list contains recently used paths.



Browse for a path.

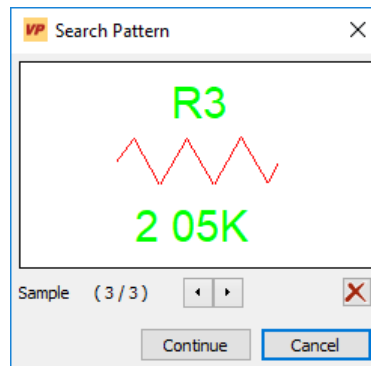
A **New Symbol** will be saved to the current path. Different symbols from different sources can be saved and organized.

Favorite Symbols

Contains symbols for frequent use, independent from the current path. **Add to Favorites** adds symbols from the current path to this list. You can **Remove** symbols from the list. The respective file will not be deleted.

New Symbol

The **Search Pattern** dialog opens:



When the dialog appears samples can be selected directly in the drawing. These will be displayed in the preview window. With each additional sample the tolerance for the following recognition process will be increased. However, too many samples selected may result in unwanted results. Thus, two or three different samples are recommended for best results.

Sample

Indicates how many samples have been selected.



Go to next or previous sample.



Deletes the displayed sample.

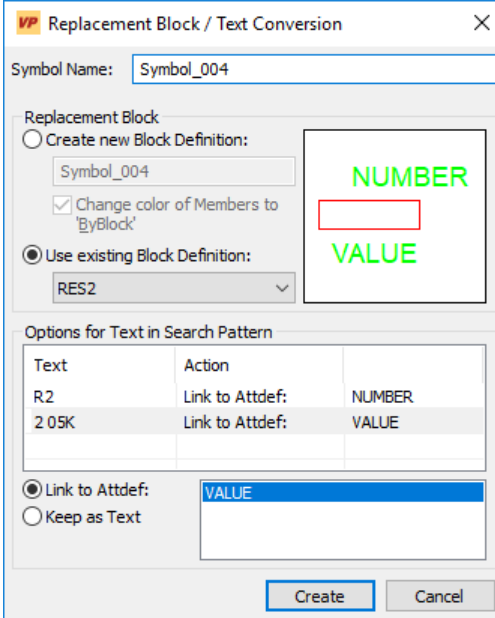
A replacement block can be defined with **Continue**.



A warning message appears when selected samples differ significantly, so that no common search pattern can be generated. In this case the problem samples need to be deleted.

Replacement Block / Text Conversion

Define a replacement block for the new symbol. When text is contained in the selected search pattern this text can be linked with attributes from the replacement block. From each pattern found individual text or numbering information can be adopted.



VP Replacement Block / Text Conversion

Symbol Name:

Replacement Block

Create new Block Definition:

Change color of Members to 'ByBlock'

Use existing Block Definition:

Options for Text in Search Pattern

Text	Action
R.2	Link to Attdef: NUMBER
2 05K	Link to Attdef: VALUE

Link to Attdef:

Keep as Text

Symbol Name

Name / file name of the symbol. The prompted name can be modified.

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Replacement Block

Defines a replacement block for the new symbol.

Create New Block Definition: A new block definition will be generated with the elements of the search pattern. The option **Change color of Members to "By Block"** will change the elements' colors to the color **By Block**. All elements of the replacement block will be assigned the block's color, i.e. they will then be displayed in the color of the inserted block..

Use existing Block Definition: Offers all available block definitions in the document for selection. During the search run the block will be rotated automatically, but not scaled. Therefore, search patterns and replacement blocks should have comparable sizing. If this is not possible to obtain you may assign a fixed scaling factor to the replacement block (see below **Modify Symbol**).

Options for Text in Search Pattern

Select a text from the list and choose from the following options:

Link to Attdef.: Links text with an attribute from the replacement block. A selection list with available attributes appears when an existing block definition is used. With a new block definition the text element will be converted to an attribute. You can assign a name for this attribute

Keep as Text: Will not link text with an attribute. With a new block definition: the text element will not be converted.

Remove from Block (only with new block definition): The text will be excluded from the new block definition.

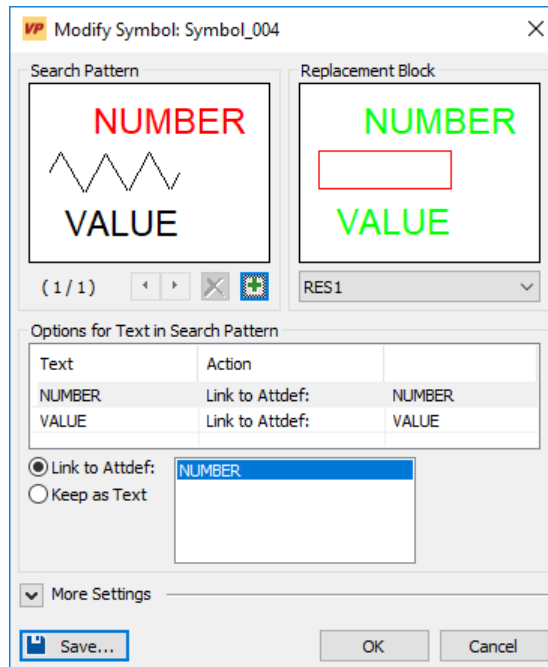
When the selected replacement block does not contain any attributes only the option **Keep as Text** will be available.

With **Create** a new symbol will be created and saved according to the current path settings. The main dialog reappears.

Modify Symbol

A symbol's search patterns can be reviewed or new patterns can be added. A replacement block can be substituted and the text links can be changed. Moreover, the replacement block's search and insertion parameters can be altered.

Dialog **Modify Symbol** with expanded settings bar:



Search Pattern

Displays all search patterns of a symbol.



Go to next or previous search pattern.



Deletes the displayed search pattern.

Add new Search Pattern to Symbol



Adds a new search pattern. Select samples for a new search pattern in the following dialog (see **New Symbol**). On close the dialog **Modify Symbol** reappears. A symbol may be composed of several different search patterns. This means that a replacement block will be inserted with this symbol for several different patterns.

Replacement Block

Displays the replacement block for a symbol. To modify the replacement block select another block definition from the list. All block definitions contained in the document are available for selection.



A substitution of a replacement block will result in a loss of links between text (in search patterns) and attributes (in replacement blocks).

Options for Text in Search Pattern

Select a text from the list and choose from the following options:

Link to Attdéf.: Select the replacement block's attribute you want to link with the text from the list.

Keep as Text: No link with an attribute.

When the selected replacement block does not contain any attributes only the option **Keep as Text** will be available.

Save As

A dialog opens to save a symbol. You may e.g. create several symbols with identical search patterns, but with different replacement blocks without creating new symbols each time.

Advanced

Opens or closes the settings bar.

Search Pattern Settings

Defines search tolerances for each search patterns of a symbol.

Tolerance (%): Defines the tolerance range for a search with a particular prototype.

Range: 5 - 75 %

Default: 15 %

Max. Gap: Defines the largest break/interruption (i.e. open line segments in the symbol contour) in pixels which will be tolerated during a search.

Range: 1 - 20 Pixels

Default: 3 Pixels

The values displayed have been calculated by the program during the prototype creation. Recommended minimum settings are **Tolerance = 15%** and **Max. Gap = 3 Pixels**.

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Replacement Block Settings

Use the **X-Scaling** and **Y-Scaling** to adapt a block to the geometric requirements of the original.



Please ensure that the block's connection shape and size correspond with the search pattern.

Search and Replace

The function **Search and Replace** becomes available only after at least one symbol is selected from the search path list or from the favorites list. When activated the program will search for selected symbols in the document or in a selection area of the document.

All matching patterns will be substituted with a corresponding replacement block. Text in the search pattern will be linked to the block's attributes and adopted.



Please note that blocks will only be rotated, but not scaled (for scaling see above **Modify Symbol**)!

When a search run is completed the number of symbols found will be indicated. The function is ready for a new search.

CAD Symbol Search

The CAD Symbol Search function is meant for drawings created with CAD programs. Opposed to vectorized drawings the search accuracy will be much higher. The function handling differs only slightly from the regular symbol search as follows.



Toolbar: **CAD Symbol Search**

Menu: **Vectorize ► CAD Symbol Search**

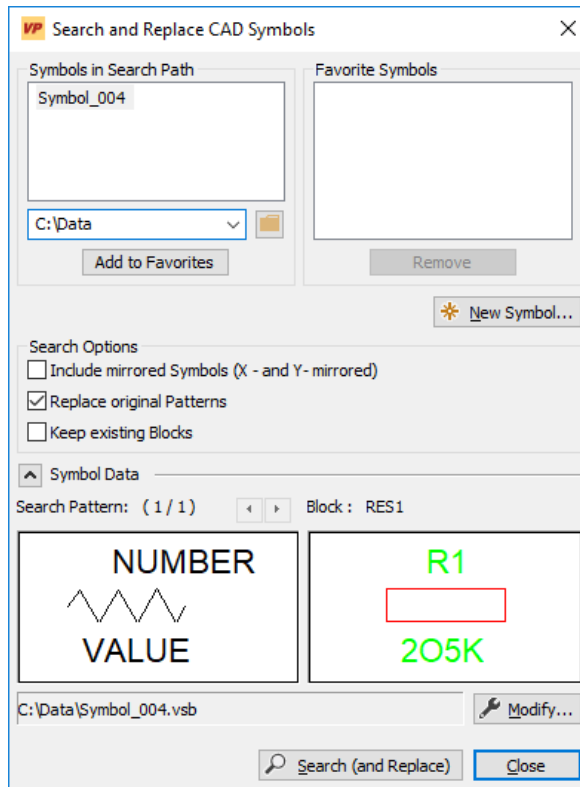
CMD: **VPSYMBSEARCHV ► Dialog**

CMD: **VPSYMBSEARCHV [<NAME.VSB>, <NAME.VSB>, <NAME.VSB>, ...]**

A symbol search process will run immediately if the command is started with specified symbol files.

Example: **vpsymbsearchv "d:\symbole\res1.vsb","d:\symbole\res2.vsb"**

Without any parameter entering a dialog opens where symbols are administered where they can be selected for a search process:



For symbol administration see above [Symbol Search](#).




Search Options

Include mirrored Symbols The search process will also include symbols which are mirrored horizontally or vertically. The replacement block will be inserted accordingly.

Keep existing Blocks: Blocks already existing in the drawing will remain unchanged.

Replace original Patterns: Vectors of found patterns will be deleted upon insertion of the replacement block.


New Symbol

 To create a new symbol only **one** search pattern is required. It can be selected directly in the drawing. A selection of belonging vectors can be done by a rectangle window selection or by clicking on the individual elements. De-select elements by clicking with **[SHIFT]**. Confirm your selection with **[Enter]**.

To continue see above (**Replacement Block.**).

The new symbol will be saved as **VSB file** in the specified folder.

Search (and Replace)

 Symbols marked in Search Path or in Favorite Symbols will be processed. For each found search pattern a replacement block will be inserted. The search pattern's vector elements will be kept or deleted according to the search option settings.

When the search process has ended the number of found symbols will be displayed. The function can now be used for the next search process.

SECTION 15

ADDITIONAL TOOLS

General Information

The **BatchManager** provides a setup of tasks that can be applied to file sets, e.g. to all files residing in a directory and their subdirectories, etc. The **BatchExecutor** executes these tasks in a background process without user interaction.

You can also write your own **Script File** to interactively perform tasks that have a defined sequential order. Scripts can be executed on command level or as part of the BatchExecutor.

The toolbar **User Commands** allows for assigning up to 10 commands or scripts to buttons in the toolbar. With this feature work flow routines can easily be integrated and commands can be made better and faster accessible!

Batch Compare automatically compares the revisions of multiple pre-selected files.

BatchManager



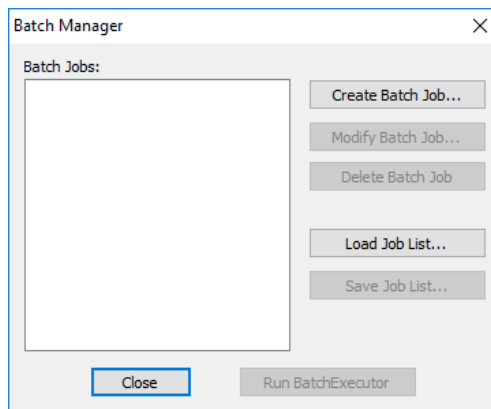
Toolbar: **Batch Manager**

Menu: **File ► BatchManager**

CMD: **VPBATCH ► Dialog**

CMD: **VPBATCH <NAME.BJB>**

The supplied batch job file is opened and executed, or a dialog box opens. Batch Jobs can be created, modified, deleted, saved, loaded, and executed:



If no batch job has been created, yet, the job list appears empty.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Create Batch Job

Creates a new batch job (see below).

Modify Batch Job

The settings of a selected Batch Job can be modified.

Delete Batch Job

A selected Batch Job is deleted from the job list.

Load Job List

Loads a previously saved Batch Job from file.

Save Job List

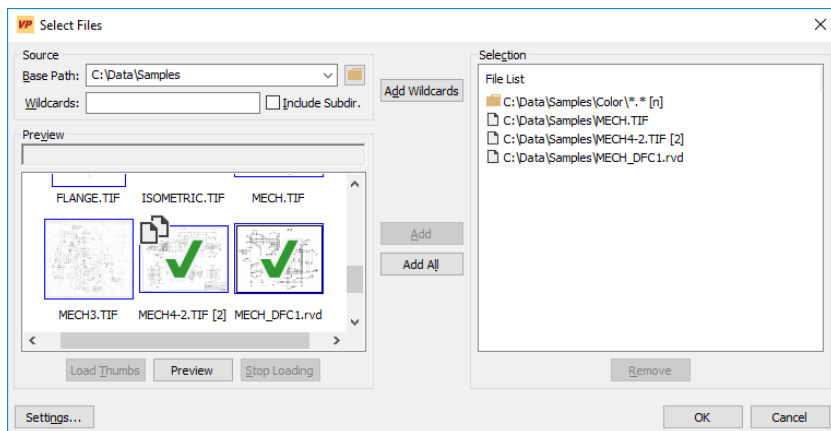
Saves a Batch Job to a file.

Run BatchExecutor

Starts the BatchExecutor and executes the current job list.

Create Batch Job

A file and task set can be defined to create a new Batch Job. The dialog **Select Files** opens to select the source files for the desired batch process.



Base Path

Type in the location of the source files or use the button for browsing.

Select single or multiple files in the **Preview** area and add them to the **Selection** list using the button **Add** or **Add All**.

To remove selected single or multiple files from the **Selection** list use the button **Remove**.

Wildcards

To show only files in the **Preview** that match a specified wildcard pattern, type the pattern into the edit field **Wildcards**. For example, if you want to see only files that start with the character "b" you can use wildcard patterns like **b***, **b*.***, **b*.tif**, ***.tif**, etc. (according to standard conventions). The wildcard character "?" is a variable for a single character, thus the pattern **test?.tif** would find the file **test1.tif**. However, neither the file **test20.tif**, nor the file **test.tif** would be included. Without entering a specific pattern, the default pattern ***.*** is used instead, finding all files which have a file extension and which can be loaded using the available import filters.

Include Subdir.

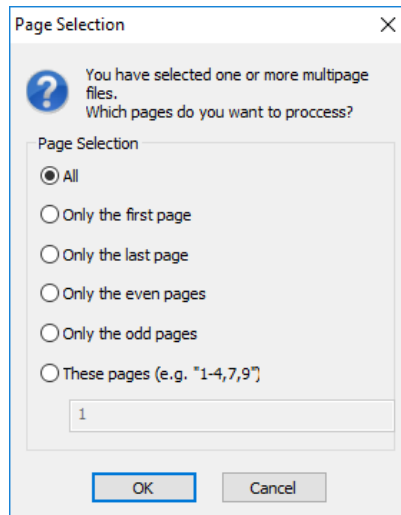
If this checkmark is **on** the preview recursively shows all found files and all subdirectories in **Base Path**.

Add Wildcards

Use this button to add a source to the **Selection** list that uses **Wildcards**. You can use this feature to create a batch job that works on a specific directory, rather than on a specified set of files. For example, you can create a batch job for the directory **c:\scanned files*.***. No matter which files were residing in the directory at the time of the batch job creation, whenever the batch job is executed, all files residing in the directory will be processed.

Page Selection

When selecting one or more multipage files a dialog pops up to specify which pages should be processed in the batch:

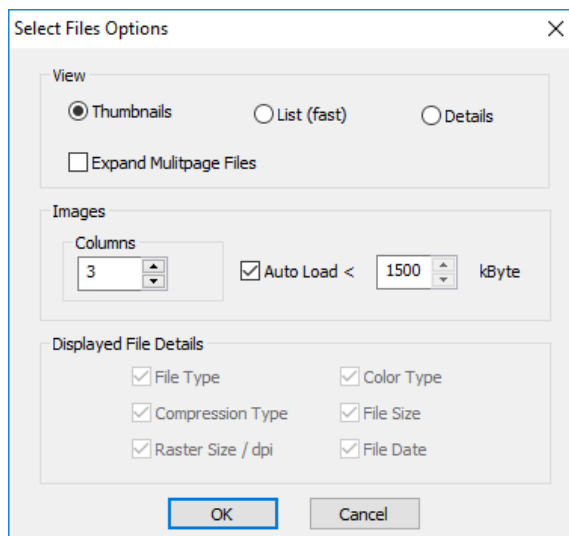


Default: **All**

The dialog appears only once for each selection (**Add/Add All**). The specified settings apply to all multipage files in this selection. Therefore only multiple files that should be processed in a similar way should be selected at a time.

Settings

Pressing this button allows for defining the appearance and display of the files in the **Preview**:



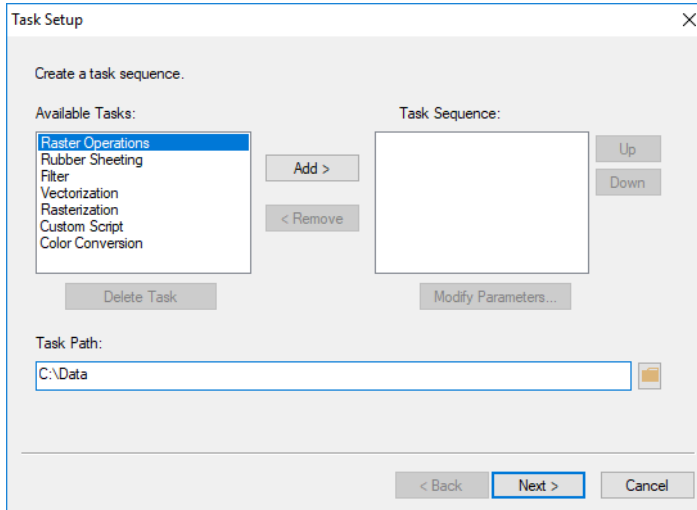
You can either choose to display **Thumbnails** (Images), a **List (fast)** of file names, or a list of file names with **Details**. You can also select to see all pages of a multi page file as single items (**Expand Multipage Files**). The columns' arrangement defines the size of the thumbnails. The **Autoload** function can be limited, in order to prevent loading large files for display which might take too much time.

Finally, Tool Tip information, displayed when moving the cursor over the source images' display, can be defined individually in **Displayed File Details**.

Click **OK** to return to the **Select Files** dialog.

Task Setup

In the **Select Files** dialog click **OK** once all files have been assigned for processing to the **Selection** list. Next, the **Task Setup** dialog opens where you can create the batch process.



Task Sequence

Gradually select the standard or user defined tasks and add them to the task list using the **Add >** button. Depending on each specific task a dialog comes up for setting up parameters. See the corresponding sections of this manual for a detailed description.

In the **Custom/Script** parameter dialog you can enter commands with parameters as you would do in the program's regular command line. You can also **Load** or paste commands from an existing script file. Be sure not to use commands that would require user input. Otherwise, these commands cannot be executed.

Use the **< Remove** button to delete a selected task from the **Task Sequence**.

Task Path

Enter or browse to a **Task Path** for saving the custom parameters of a task.

Delete Task

Deletes a selected user defined task file. The standard tasks cannot be deleted.

Modify Parameters

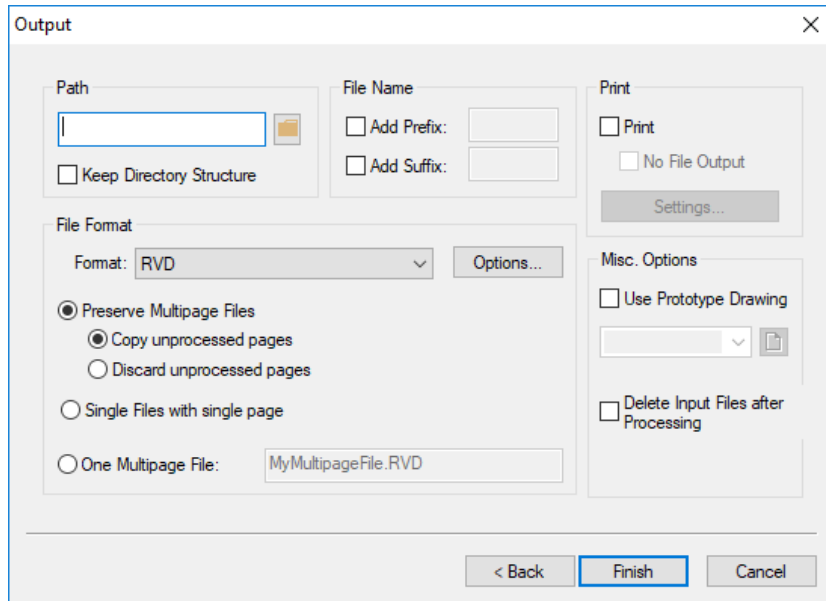
To review and modify the parameters of a task, select the task in the **Task Sequence** list and click on **Modify Parameters**.

Task Order

The **Up** and **Down** buttons can be used to change the process order of the tasks.

Output Options

Click **Next** to specify the output options. The output dialog opens:



The screenshot shows the 'Output' dialog box with the following fields and options:

- Path:** A text input field with a browse button (folder icon) and a checkbox for 'Keep Directory Structure'.
- File Name:** Two checkboxes, 'Add Prefix:' and 'Add Suffix:', each followed by a text input field.
- Print:** A checkbox for 'Print' and a checkbox for 'No File Output'. Below them is a 'Settings...' button.
- File Format:** A dropdown menu set to 'RVD' with an 'Options...' button.
- File Format Options:**
 - Preserve Multipage Files
 - Copy unprocessed pages
 - Discard unprocessed pages
 - Single Files with single page
 - One Multipage File:
- Misc. Options:**
 - Use Prototype Drawing
 - Delete Input Files after Processing

At the bottom of the dialog are three buttons: '< Back', 'Finish' (highlighted with a blue border), and 'Cancel'.

Path

Type in or browse to the directory where the processed files will be saved. If **Keep Directory Structure** is checked on the processed files will be saved in subdirectories of **Path** in the original order of the source files.

File Name

The name of target files can be composed of the original file name and a prefix and/or a suffix:

<Prefix><Original File Name><Suffix>

If desired select the corresponding option(s) **Add Prefix/Add Suffix** and enter the character strings. When working with multi page files you can use the special sequence **%02d** to write out the page number. You can omit **0** if you do not want trailing zeros. **2** is the number of digits the page number should have.

File Format

The result of a batch process can be saved to any VP supported file type. Depending on the file type additional multi page and/or **File Format Options** (see Chapter 3: **File Format Options**) are available.



Note: Not all formats support all data types. Saving data to an unsuitable file format may result in empty or incomplete data sets!

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

When processing multi page files use **Preserve Multipage Files** and **Copy unprocessed Pages** to keep the complete multi page file (equal number of pages). With **Discard unprocessed pages** only the selected (processed) pages (see above **Page Selection**) will be saved to the output file.

With **Single Files with single page** each processed page is saved to an individual file. This is the only available option if the selected **file type** does not support multi page output.

Use **One Multipage File** to save all processed pages/files into one single multi page file. Define the name of the output file. The file location is specified with the **Path** setting.

Print

Activate the **Print** option to send the resulting files to a printer. If **No File Output** is checked files will be printed, but not saved.

You can change the printer and the print options by clicking **Settings**.

Misc. Options

By switching **Use Prototype Drawing** you can apply layer settings from a specified Prototype Drawing to the source files. This way you can easily adapt e.g. layer widths and colors to certain standards of an organization or to a general norm.

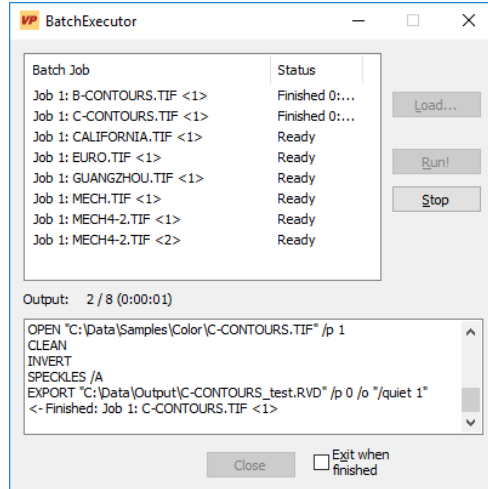
Activate **Delete Input Files after Processing** if you want to delete the original files.

Click **Finish** to complete the job setup. The **Batch Manager** dialog re-appears.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	□ VPraster edit	■ VPmap
□ VPlite		

BatchExecutor

To start the **BatchExecutor**, click on **Run BatchExecutor** in the BatchManager (which also executes the job list) or double click the icon in the VP program group.



You may also start the **BatchExecutor** from the windows command line prompt. A job file and other options can be specified by parameters. Enter

BatchExecutor.exe /?

to display the available options.

Load

If you have started the BatchExecutor from the BatchManager the setup jobs are loaded automatically. Otherwise, you first need to load a previously saved job list using the **Load** button. Already displayed jobs will be deleted.

Run!

Clicking **Run!** starts the job execution. All displayed files will be processed sequentially. The **Status** for each file changes from **Ready** to **Running** and, after process execution to **Finish**.

Stop

Aborts the processing immediately.

Output

The **Output** window displays the currently executed commands.

Exit when finished

Close the **BatchExecutor** when all jobs are finished. The output messages are redirected to a log file residing in the **SUPPORT** subdirectory of the VP software installation directory. In the example above (**Job 1**) the log file is named **Job 1_log.txt**.

Scripting

All VP software commands which can be executed from command line level can also be assembled into a plain text file to define the order of consecutive tasks for batch processing. This script can be executed from the command line, in a batch, or automatically on program start.

The syntax and available parameters of a particular command will be displayed in the command window on entering the desired command with the parameter "?".

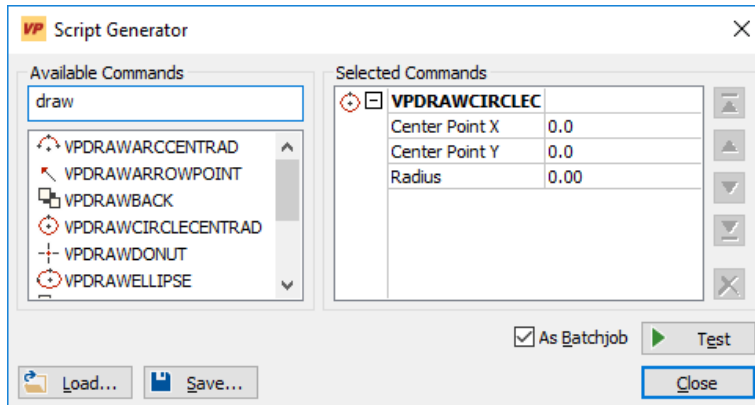
Creating a Script

Create Script

Menu: **File ► Create Script...**

CMD: **VPCREATESCRIPT ► Dialog**

The **Script Generator** dialog pops up. You can easily create new scripts or edit existing ones by drag-and-drop commands and/or adjusting parameters:



The selected command sequence can be tested and edited multiple times until the desired result is reached. Existing script files can be loaded and manipulated.

Available Commands

The list offers all VP commands which are available in your product and which are able to run via command line. Use the edit field to filter for commands. E.g. "draw" to get all draw commands. Clear the field to get all commands again. To select a command drag-and-drop it into the **Selected Commands** window, or double click it.

Selected Commands

Command list of the current script. You can adjust the parameters of each command, change its orders, or erase one from your script.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Change Order



Moves a selected command to top/up/down/to bottom.

Delete Command



Deletes the selected command from your script.

As Batchjob

On: The **Test** will run in a batch mode. Any user interaction will be suppressed. Make sure you have specified all parameters probably. Otherwise the script will either stop with an error or ignore this command (e.g. all commands which expect a selection).

Off: The script allows user interaction. The script will stop on any command that is not completely specified through its parameters and ask for user input.

Test

Runs the actual script as defined in the list. When finished the program stops with a **Question mark** cursor. This gives you the opportunity to review the result. With a click the **Script Generator** dialog pops up again.

For multiple test runs or before finishing the command, a message pops up to reset the document to its initial state.

Load

Loads an existing script file. Default extensions for script files are **TXT** and **SCR**. But also any other extension is valid as long as this file contains a VP valid script. The commands of the script with its parameters will be entered into the **Selected Command** list. If the script file contains unknown command or unknown parameters an error message pops up.

Save

Saves the script as shown in the **Selected Commands** list to a file. You can use this script file either in a batch job or run it directly (see **Execute Script**).

Text Editor

Use an editor (e.g. the Windows Notepad) and type each command into a separate line (like you would do in the command line window).

The following example imports a raster file (the file name may include drive and path if necessary), despeckles the file using the automatic despeckle option, deskews the file, and exports the cleaned file to a new file:

```
VPimport <File Name>
VPspeckles /a
VPautoDeskew
VPexport <New File Name>
```

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Save this script file as plain text with an arbitrary extension, e.g. "**CleanFile.TXT**".

Depending on the commands the execution will stop and prompt the user for input, e.g. if you don't enter the parameter <File Name> the open dialog will open for selection. Instead of **<New File Name>** you can also use pre-defined wildcard characters to reflect the original **<File Name>**:

%FILEPATH% Path of current file
%FILENAME% Name of current file (without path and file extension)
%FILEEXT% File extension of current file

Especially, this may be helpful when scripts are used in a batch process. Example: With the following command, each processed file is saved into the folder c:\tmp, adding a suffix to the original file name, and keeping the original file extension:

VPexport "c:\tmp\%FILENAME%_ready. %FILEEXT%"

Execute Script

CMD: **VPSCRIPT** ► Dialog

CMD: **VPSCRIPT** <NAME>

If a script file is specified, this script is executed immediately. Otherwise a file open dialog pops up to select a script file.

Depending on the command of the selected script the process may stop for user input. If e.g. no file name was specified for an import command, the file open dialog shows up.

Execution on program start

For execution of the script on program start call the VP software main program **MAIN.EXE** with the parameter **/b** and the script file name. For example:

Main.exe /b c:\Scripts\CleanFile.txt

User Commands

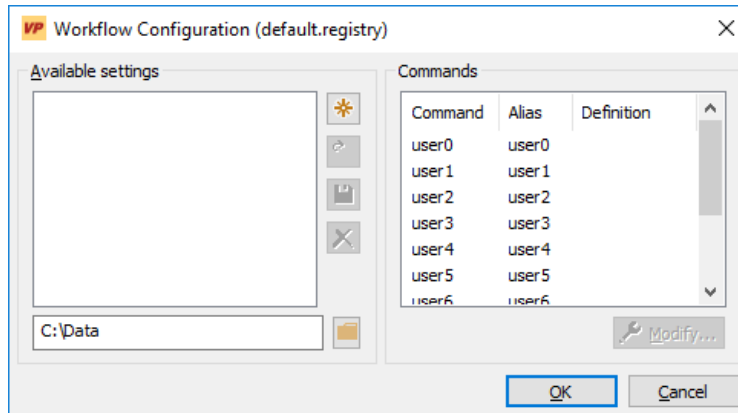


Toolbar: **User Commands**

Menu: **Options ► User Commands...**

CMD: **VPWORKFLOW ► Dialog**

The dialog **Workflow Configuration** opens.



The dialog is divided into two sections. The commands on the left side in **Available Settings** allow for managing user commands in setting files. The right section of the dialog shows the 10 available commands of the loaded setting.

Available Settings



Directory: Specifies the directory that is used for searching existing setting files. Found files are displayed in the list. All files with the extension `.wfl` are shown while their extension is suppressed in the list.



Create... :A new settings file is created in the specified directory. Enter an unused Name in the upcoming dialog. The currently active **Commands** will be taken over automatically.



Load: The selected settings are loaded and displayed in the **Commands** list. If the currently active commands contain unsaved modifications a safety dialog opens to confirm that the new settings shall be loaded.



Save: The **Commands** are saved with the selected name. Existing commands are overwritten without safety prompt.



Delete... :The selected settings are deleted from the **Settings Directory**. Deletion has to be confirmed in a safety prompt.

Commands


The **Commands** list displays the currently active definitions for the available 10 user commands.

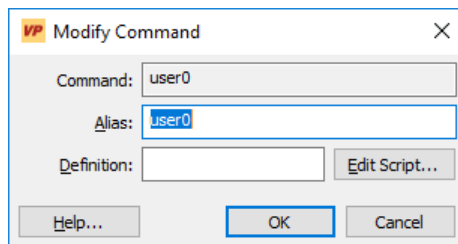
The column **Command** shows the default name of the command for an unambiguous identification (**user0** - **user9**).

Alias displays the user defined synonym for the command. If the user has not assigned any synonyms, the default command names are listed here.

The column **Definition** contains the commands which will be executed when the user command is started.

Create / Modify User Commands

With the button  **Modify...** the dialog Modify Command opens for creation or modification of the selected commands' properties.



Command: The unique name of the command as it is used by the system. It cannot be changed by the user.

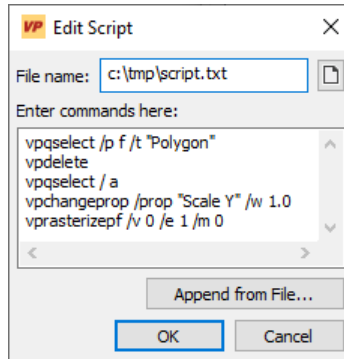
Alias: Customizable name (synonym) for the user command. With this alternative name the command can also be called in the command line or in scripts.




It should not contain blanks or special characters in order to avoid the necessity of quoting the command in the command line or in scripts!

Definition: The command associated with this user command. Possible are **command line** commands, **scripts** or the **call of other programs** (see below).

Edit Script...: Opens a dialog for creating or editing script files.



File name: Name of the script file. The name can either be entered directly or selected with the button . If a script has already been assigned to the user command, the corresponding file name is displayed here.

The content of the specified file (if available) is displayed in the text window (**command list**) and can be edited.

Append from File: The contents of selected script files are copied to the command list.

Click **OK** to close the dialog and create or change the specified file. The definition of the user command is adapted accordingly.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Definition

Enter a command as used in the VP software command line input or as a path to a Windows application or as a file as used in the Windows command line input in the **Definition** field.

Examples:

1. A single command (load a prototype drawing)

vpopen "C:\My Documents\A4\Frame.rvd"

2. Processing a sequence of commands (see **Command Script** in this section for creation of a script file)

vpscript "C:\scripts\cleanfile.txt"

3. Execution of an application (e.g. Windows Notepad)

c:\windows\notepad.exe

4. Start of an application through a registered file type

http://www.softelec.com (start standard Internet browser)

or

c:\database\Drawings.mdb (start MS Access with Drawings.mdb)

As an additional option the file name of the active document can be passed on to the application using **<File>**. For example, you can print in the background in a second program instance:

"C:\programme\vpview\main.exe" /p <File>

Batch Compare

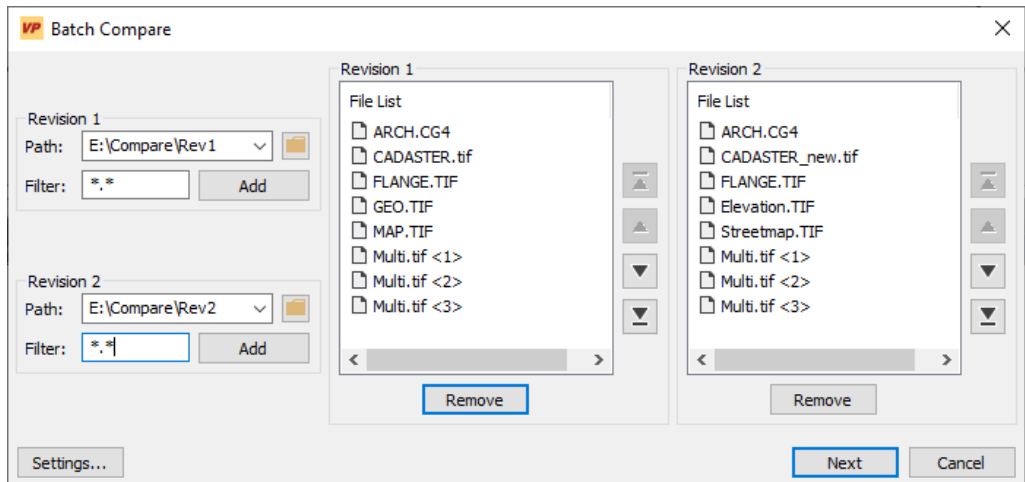
Menu: **File ► Batch-Compare...**

CMD: **VPBATCHCOMPARE ► Dialog**


With Batch Compare, several files or file groups can be selected and compared with each other. The result of each comparison is saved in a PDF file for later review. See also [Chapter 4: Advanced Compare Mode](#).

File Selection

On start the dialog **Batch Compare** opens.



Revision 1 / 2

Path: Path to the files to be added to the file list. Enter or select a path with the button .

Filter: Specifies which files from the selected folder (path) should be added to the file list. Either all files (*.*) can be specified or only a selection. The selection is made either via the file extension (e.g. *.tif), a name pattern (e.g. file*.*) or both (e.g. file*.tif). See also **Wildcards** (Batch Manager - Create Batch Job) above.

Default: *.*

Add: Adds the files to the associated file list according to the criteria specified above. This process can be repeated with different path and filter settings.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

File List: List of selected files. For multi-page files, each page is listed separately. The order of the entries determines which files/pages should be compared.

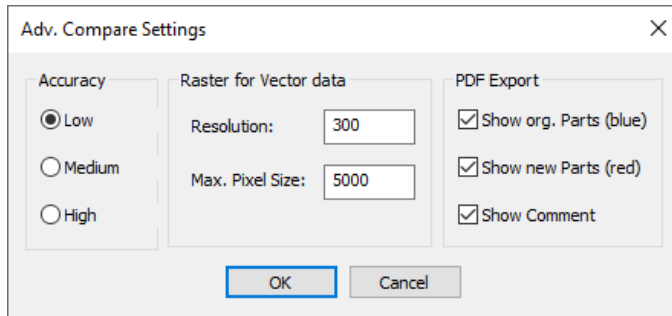


: Use these buttons to move a marked entry up or down.

Remove: Removes selected entries from the file list.

Settings...

Opens a dialog with settings for the advanced compare mode:



Accuracy: Accuracy of the comparison. If the accuracy is low, small differences between the files are ignored.

Default: Low

Raster for Vector data: With these settings the quality of the comparison can be changed, if a file contains vectors. The values are optimized for average drawings and should not be changed.

Default: 300 (Resolution)

Default: 5000 (max. Pixel Size)

PDF Export: Specifies which areas are to be displayed in the PDF file containing the result of the comparison.

Note: The PDF file always contains **all areas**. Here you can only specify which areas are visible when the PDF file is opened for the **first time**. Disabled areas can be switched on in the PDF reader at any time.

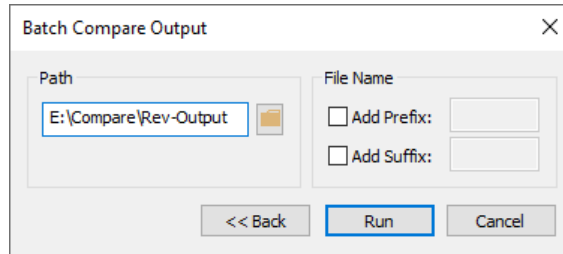
Default: show all

Next

Closes the file selection and proceeds to the output options.

Output Options, Start Batch Compare

The following dialog appears:



Path: The folder in which the PDF files are to be written.

Add Prefix: Character string that precedes each file name.

Default: off

Add Suffix: Character string that is appended to each file name.

Default: off

Start Batch Compare

Press **Run** to start the compare process. The files (or individual pages) are compared using the order in the file lists. For each individual comparison, a PDF file containing the result of the comparison is created in the target directory. The name of the first file (Revision 1) is used as the file name, in the case of multi-page files the respective page number is added.

When the process is finished, a corresponding message appears.

SECTION 16

REDLINING (WINDOWS ONLY)

General Information

Redlining is a powerful feature to insert mark-ups into an existing drawing. These mark-ups can be used to highlight inaccuracies of the drawing, required modifications, or just any kind of information for other viewers, e.g. production process handling information, design remarks, etc. The redlining entities may be visible to all viewers or hidden at any time.

In addition to the general redlining functions, VP software offers the possibility to restrict the access (view, modify, etc.) to these entities on a user/password basis (see **Section 3** System Settings - Redlining Tab).

Redlining Functions

The Redlining toolbar offers the following functions:

- **Activate/Deactivate Redlining Mode**
- **Import Redlining Data**
- **Export Redlining Data**
- **Redlining Settings**
- **Review Redlining Data**
- **Delete Redlining Data**
- **Insert Ellipse**
- **Insert Cloud**
- **Insert Arrow**
- **Insert Transparent Rectangle**
- **Pick Entity**

Activate Redlining



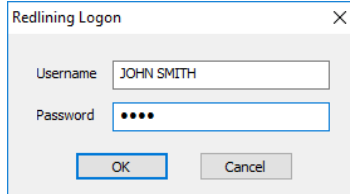
Toolbar: **Redlining**

Menu: **Redlining ► View Redlining**

CMD: **VPRDLON**

Use this command to activate or close the **Redlining** functionality. Depending on the access rights (see **Section 3** System Settings - Redlining Tab), a user will see all the redlining entities of that document, or some, or none. When access restrictions are set-up, the user will be prompted to enter a user name and a password for logon.

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		



Redlining Logon

Username: JOHN SMITH

Password: ●●●●

OK Cancel

Redlining will be activated automatically by loading a drawing which contains redlining information.

Import



Toolbar: **Redlining**

Menu: **Redlining ► Import**

CMD: **VPRDLIMPORT ► Dialog**

CMD: **VPRDLIMPORT <File Name>**

Allows for importing redlining data from an **RLF** file.

Export



Toolbar: **Redlining**

Menu: **Redlining ► Export**

CMD: **VPRDLEXPOR ► Dialog**

CMD: **VPRDLEXPOR <File Name>**

Redlining data may be exported to **RLF**, **RVD**, **DWG**, **DXF**, **DGN**, or **CGM** file formats. Except for the native **RVD** format, only the redlining data will be exported! **RLF** is VP software's internal format for redlining data with access restriction information.

Use the native **RVD** format if access restrictions have been set-up and the whole drawing, including redlining information, should be saved to an unrestricted file (e.g. to send the data to another party for reviewing). All other export formats will only contain the currently visible (see below) redlining entities. These are treated as blocks with attributes, separated on different layers depending on the way they have been created.

Settings



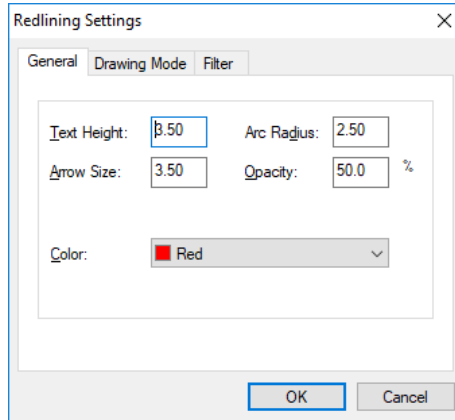
Toolbar: **Redlining**

Menu: **Redlining ► Settings**

CMD: **VPRDLSETTINGS ► Dialog**

Specifies the standard settings for the creation of redlining entities. A dialog opens containing two tabs.

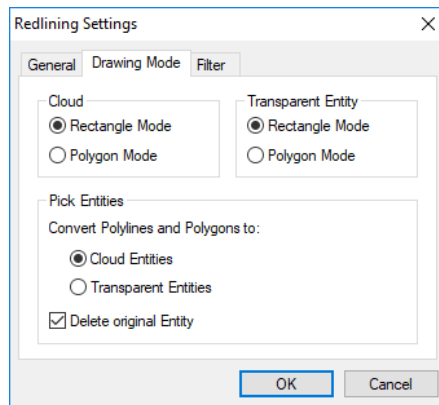
General Tab



Define **Text Height**, **Arrow Size**, **Arc Radius** (for cloud entities), and **Opacity** of the color for the redlining entities. Select the **Color**. These settings apply to the creation of new entities.

Text Height and **Color** can be modified individually for each entity.

Drawing Mode



Cloud

Select whether a **rectangle** or a **polygon** is to be drawn when drawing a cloud entity.

Transparent Entity

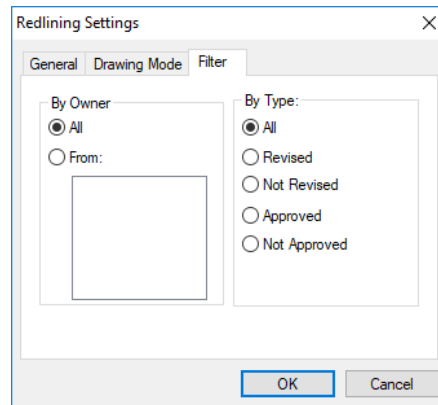
Select whether a **rectangle** or a **polygon** is to be drawn when drawing a transparent entity.

Pick Entities

Select whether a picked polyline or polygon is converted to a **cloud** entity or a **transparent** entity.

Specify, if the picked entity is to be deleted.

Filter Tab



Defines which redlining entities are displayed in the document depending on the user restrictions.

Filter

By Owner allows for displaying either the redlining mark-ups of:

- **All** or
- **From:** Selected creators.

By Type allows the selection of the entities according to their status:

- all entities,
- revised entities,
- not revised entities,
- approved entities,
- not approved entities.

Redlining Review

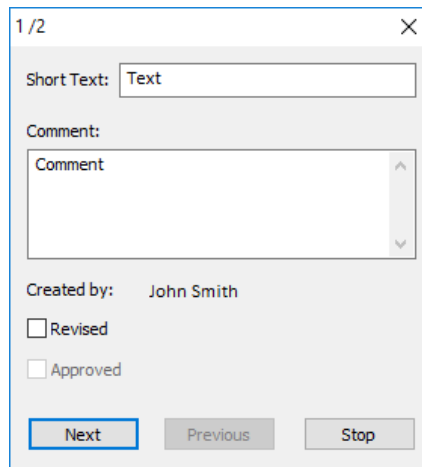


Toolbar: **Redlining**

Menu: **Redlining ► Review Redlining**

CMD: **VPRDLREVIEW ►** Moves to 1st redlining entity and opens redlining properties.

Starts or continues the review of the redlining mark-ups. The program zooms in automatically on each redlining entity and displays the properties in a dialog box. Depending on the access rights the user may edit the text of each entity or revise/ approve the mark-up.



1/2

Short Text:

Comment:

Created by: John Smith

Revised

Approved

Next, Previous

Use **Next** to review the next redlining item and **Previous** to go back to the last entity reviewed.

Stop

Stop closes the dialog box. If the review function is called again it will start at the last item reviewed. The next entity of the list will be displayed.

Delete Redlining Entities



Toolbar: **Redlining**

Menu: **Redlining ► Delete Redlining Entities**

CMD: **VPRDLDELETE ►** Select Entities.

Deletes the selected redlining entities.

Insert Ellipse



Toolbar: **Redlining**

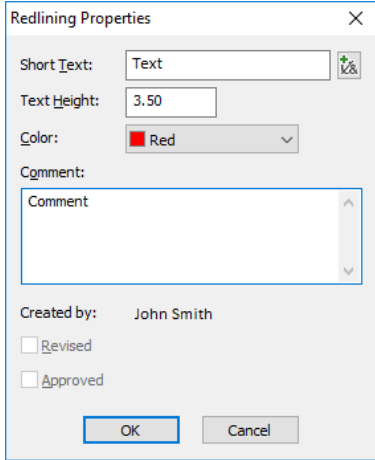
Menu: **Redlining ► Insert Ellipse**

CMD: **VPRDLELLIPSE ►** Requires 2 mouse clicks to define the position and size of the ellipse.


Inserts a redlining entity with the shape of an ellipse. The size of the ellipse is adjustable in both directions by moving the mouse.

Short Text, Comment

On the second mouse click a dialog box opens to enter a **Short Text** (headline, which is permanently displayed with the entity) and a **Comment** for the entity. **Text Height** and **Color** for this entity may be modified from their default values (defined by the **Redlining Settings**).



Redlining Properties

Short Text: 

Text Height:

Color:

Comment:

Created by: John Smith

Revised

Approved

After pressing **OK** the **Short Text** can be placed on the drawing.

Insert Cloud



Toolbar: **Redlining**

Menu: **Redlining ► Insert Cloud**

CMD: **VPRDLCLOUD ►** Draw a rectangle or polygon

Inserts a cloud redlining entity. Depending on the drawing mode, a rectangle or a polygon entity will be drawn. Change the drawing mode in the **settings** or via the context menu.

Same handling as **Insert Ellipse**.

Insert Arrow



Toolbar: **Redlining**

Menu: **Redlining ► Insert Arrow**

CMD: **VPRDLARROW ►** Requires one mouse clicks to define the position of the top of the arrow.

Inserts a redlining entity with the shape of a pointing arrow. Same handling as **Insert Ellipse**.

Insert Transparent Rectangle



Toolbar: **Redlining**

Menu: **Redlining ► Insert Transp. Rectangle**

CMD: **VPRDLTRECT ►** Draw a rectangle or polygon

Inserts a transparent redlining entity. Depending on the drawing mode, a rectangle or a polygon entity will be drawn. Change the drawing mode in the **settings** or via the context menu.

Same handling as **Insert Ellipse**. If required, use the **Properties** to modify the transparency.

Pick Entity



Toolbar: **Redlining**

Menu: **Redlining ► Pick Entity**

CMD: **VPRDLPICK ►** Click on a vector entity (closed polylines/polygons or circles/ellipses only).

Converts selected vector entities to redlining entities.

Closed polylines and polygons will be converted to transparent entities or cloud entities, depending on the current settings (see also **Settings - Drawing Mode**). The drawing mode can also be changed via the context menu. Circles and Ellipses will be converted to ellipse entities.

The picked entity will be deleted, if specified in the settings (default: **on**).

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

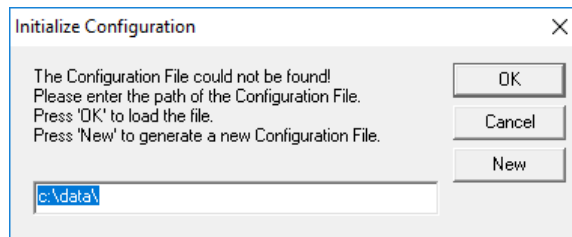
Redlining Configuration

In some applications it may be of interest to limit the access of users with redlining.


Imagine the following situation: A company has a support center which creates redlining mark-ups (e.g. modification demands or improvement requests from customers) into an existing drawing. The support staff should only insert new entities, but not remove or modify items inserted by other employees. At a higher level a manager reviews these entities, and marks those as **Revised** which should actually go into re-design etc. Then, the "revised entities" are disabled from any modification. The draftsman in charge may modify the drawing according to the redlining mark-ups and their comments, but he may not modify the redlining or even remove the entities. At a final supervision level another manager checks the document modifications and compares them with the redlining mark-ups. He then approves the modifications checking **Approved** or he may erase these entities from the drawing if no further check or approval is necessary.

To achieve this structure, restrictions can be set up for each user depending on his function inside the company hierarchy. Use the program **RLCFG.EXE** located on the CD in the directory **\Redlining**. Copy the program to any location on your hard disk.


If the program is called the first time it will show the following dialog:



Specify a path for the configuration file and press **New** to create a new configuration setting. If a configuration file has already been set up, just enter the path where it is located and press **OK**.

 For proper operation of the **Redlining Configuration** file it is demanding that the administrator and all added users have read/write access rights to the location of the configuration file!

After generation of a new configuration file only one user is available by default: the **ADMINISTRATOR** (no password). You can start to add and/or modify users and/or groups. On **Exit** the configuration file will be updated and saved.

 When calling the program again a **Logon** and **Administrator Rights** are required to open the program.

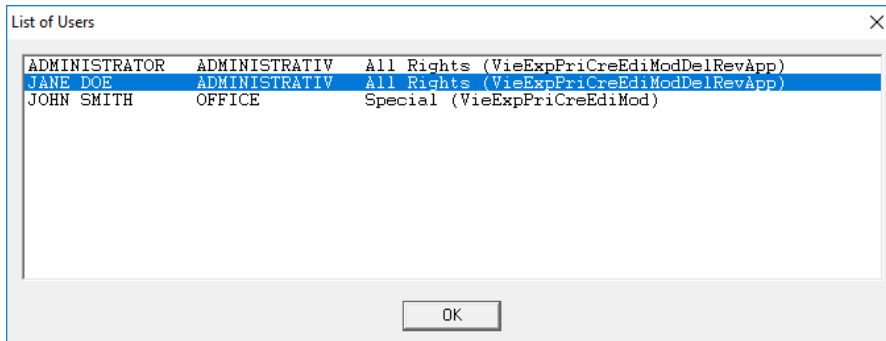
Configure Redlining Users/User Groups

The user management is similar to the one used with Windows NT/2000/XP. **User Groups** having specified rights may be created and **Users** may be assigned to the groups. A user can only be a member of **one** group and has the rights specified for that group!

The following rights can be specified:

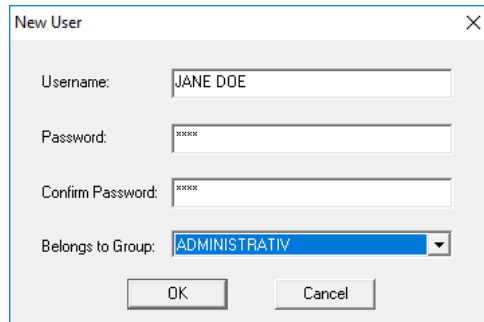
- **Admin** All rights are assigned to an Administrator.
This user can also create, modify, and delete users and groups.
- **View** The user can only view (look at) the redlining entities and their properties.
- **Print** The user can print the redlining entities. If this right is switched off, the redlining entities will not be printed even though the entities are displayed.
- **Export** The user can export the redlining data to an **unrestricted** vector or hybrid file.
- **Create** The user can create/add new entities. He is allowed to modify, edit, or erase these entities created by himself (he is the owner) until they are revised.
- **Modify** The user can modify (move, change) any redlining entity which is not revised.
- **Edit** The user can edit the text/comment of any redlining entity which is not revised.
- **Erase** The user can erase any redlining entity.
- **Revise** The user can set the '**revised**' flag to an entity.
- **Approve** The user can set the '**approved**' flag to an entity.
- **No Rights** User has no redlining rights at all.
He will not even see redlining entities on a document.

List Users



Displays a list of all users, their groups, and access rights.

New User

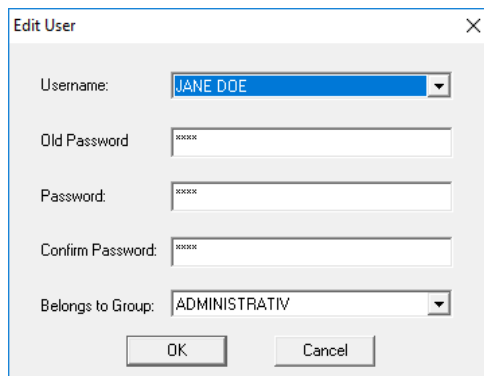


The 'New User' dialog box contains the following fields and controls:

- Username:** Text input field containing 'JANE DOE'.
- Password:** Password input field with masked characters '*****'.
- Confirm Password:** Password input field with masked characters '*****'.
- Belongs to Group:** Dropdown menu with 'ADMINISTRATIV' selected.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Creates a new user. Enter the user name and the password. Assign the user to any available group as a new member.

Edit User

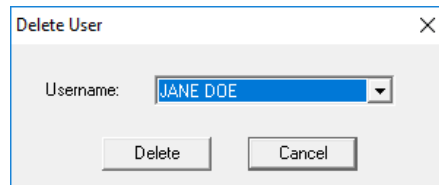


The 'Edit User' dialog box contains the following fields and controls:

- Username:** Dropdown menu with 'JANE DOE' selected.
- Old Password:** Password input field with masked characters '*****'.
- Password:** Password input field with masked characters '*****'.
- Confirm Password:** Password input field with masked characters '*****'.
- Belongs to Group:** Dropdown menu with 'ADMINISTRATIV' selected.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Edits an existing user. You can modify his password or the group assignment.

Delete User



The 'Delete User' dialog box contains the following fields and controls:

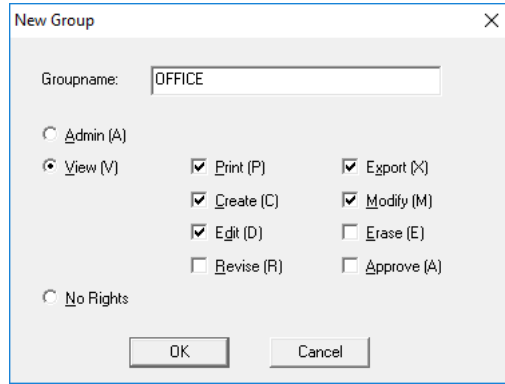
- Username:** Dropdown menu with 'JANE DOE' selected.
- Buttons:** 'Delete' and 'Cancel' buttons at the bottom.

Deletes an existing user.



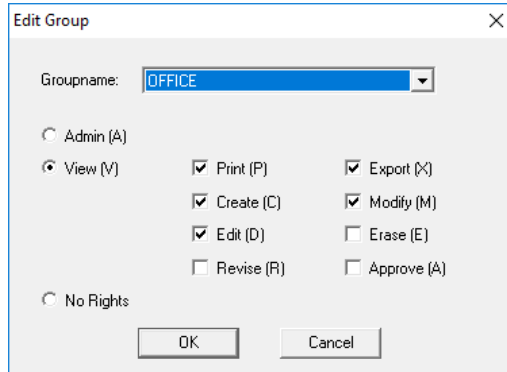
An error message appears if the last user or the **ADMINISTRATOR** should be deleted! This is not possible.

New Group



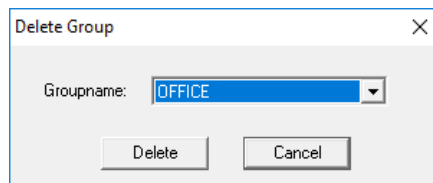
Creates a new group. Specify a group name and the access rights for this group.

Edit Group



Edits an existing group. Modify the rights of that group. Any changes apply to all users of the group.

Delete Group



Deletes a group. A group can only be deleted if there are no users assigned to it!

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

SPECIFICATIONS

General Specifications for all VPHybridCAD Products

Import / Export Formats	See Appendix
Scanner Interface	TWAIN
Raster Image Formats	No real limitation: 16 million x 16 million pixels max., VPlite: Up to A2 ("C") @ 300 DPI, i.e. 16,000 x 16,000 pixels max., total 36 million pixels
General Functions	Multi document interface Multi page documents (only on Windows) Command line interface Layer, linetype, text style, width, color manager Project bar (only Windows) Image settings User coordinate system (user units, scale, origin) Coord snap Grid, grid snap Ortho, polar, tangent, perpendicular snap Raster and vector snap Measure: distance, angle Undo, redo, Redraw Drag'n drop Cut/copy/paste Properties (view, modify) Select, delete entities Quick selection
Functions of Raster Editor	Auto Deskew and Despeckle Automatic Cut Window/Polygon cut, crop, Cut to drawing format, Deskew raster file Rotate raster file: 90°, 180°, 270°, arbitrary angle Mirror, Invert raster file Scale drawing Despeckle raster file/window: 1 thru 128 pixels Fill holes in raster file/window: 1 thru 128 pixels
Raster Editing	Select raster (pick, window, polygon), Copy, Move, Erase raster Draw raster entities Edit text
Raster Object	Copy to, Paste from symbol library Create Raster Object with raster selection Raster Object separation Move, Copy, Scale, Rotate raster object

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Functions of Vector Editor

Select vector entities
 Modify/Match layer assignments
 Draw: line, polyline, spline, arc, circle, ellipse,
 quadrangle or polygon area
 Insert: arrowhead, point with style
 Entities: adjust, move, copy, scale, rotate, mirror
 Text: create, move, rotate, scale
 Direct text edit: text, multiline text

Color Operations

Automatic binarisation

CAD Settings

Object snap modes
 Length of pointing and dimension arrowhead
 Hatch: single/cross, angle, line distance, solids
 Transparency: on/off, fix/variable

Graphical User Interface

Command input via mouse, keyboard (command line)
 DDE/OLE interface
 Toolbars moveable and customizable
 Online help

Graphical Display

Graphical resolution according to OS and hardware
 ZOOM and PAN function
 Bird's eye
 Overlay of raster data and vectors
 Modification of presentation colors (foreground, cursor,
 background, grips, etc.)

Plot, Print

Whole drawing, current view, paper format
 Scaling: fit paper/custom scaling factor
 Raster data and/or vector data, selectable through layer
 settings.
 Linewidth table
 Preview

Operating Systems

Windows 7 or higher (32bit + 64bit)
 AutoCAD 2010 - 2020 (32bit+64bit)
 BricsCAD V18 - V20 (32bit + 64bit) (pro+platinum)
 ZWCAD 2020

Recommended Hardware

Windows 7 compatible PC (8 GB) or better

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

VPstudio (additional Specifications)

Direct Scanner Interface	CalComp, Colortrac, Context, Océ, Vidar, Xerox
Add. General Functions	<ul style="list-style-type: none"> Page control Symbol library Command script Rasterize entities Color conversion RGB/PAL, RGB/bw, PAL/RGB, RGB/bw, view palette Trim, autotrim, extend entities Chamfer, Fillet Cut, break entities Build corner between entities Stamp Compare revisions
User Commands	<ul style="list-style-type: none"> Customize toolbar commands Execute single commands, command sequences, command scripts, other applications
Table Recognition	<ul style="list-style-type: none"> Modify shape and content of raster tables Convert table in vectors
Functions of Raster Editor	<ul style="list-style-type: none"> Click-select, raster entities Select raster objects Modify, move, copy, combine raster entities/objects Split raster file Merge, adjust 2 raster files Rubber sheeting (4 point, multi point) Smooth entities with raster selection (arc, circle, line) Fill raster (b/w, colors) Filter: morphology, smooth raster Raster symbol search
Functions of Vector Editor	<ul style="list-style-type: none"> Multiline Text: create, move, rotate, scale Edit objects: Array, offset Edit, combine, adjust: <ul style="list-style-type: none"> line, polyline, spline, arc, circle, ellipse Edit linetypes, text Review texts Create/edit, explode, insert blocks Create and edit block attributes Create, explode, erase hatch/solids Smooth transitions between elements Adjust, align text Transform Arcs, Circles, Ellipses, Splines into Polylines
Dimensions	<ul style="list-style-type: none"> Linear, aligned, radial, diameter, angular, continue, baseline Dimension style manager Automatic mode, manual mode

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Color Operations

Filter: pre-defined (Median, Sharpen, etc.)
 custom filter up to size 7×7 pixels
 Color reduction: automatic/interactive/minor colors
 Color separation
 Color classification
 Load/save palette
 Contrast/brightness/white point/black point/gamma correction

Vectorization

Line, arc, circle, ellipse extraction
 Small circle recognition/replacement
 Line width (weight) classification
 Line straightening, line chaining
 Line type recognition: dashed, dash-dotted
 Element and line width assignment to layers
 Angle correction
 Gap jump
 Coord snap
 Arrowhead, Connection dot (donut) recognition
 Hatch extraction
 Text recognition (OCR)

Area Methods of Vectorization

File, window or polygon area on b/w or active color
 Centerline
 Outline
 Centerline/outline

Threshold Advanced Image Settings

selectable 5 thru 63 pixels

Accuracy

Select color/gray scale pattern for active color
 $\pm 1 \text{ pixel} = \pm 0.0635 \text{ mm} = \pm 2.5 \text{ mils} (@ 400 \text{ DPI})$

Wizard

Support with parameter setting

Tracing

Settings

On b/w or active color
 With or without erasure of raster background (b/w):
 CAD entities (line, arc, circle)
 Contour line
 Dashed contour line
 Image settings for definition of the active color
 Produce splines
 Straightening parameter
 Assign elevation
 Vectorization method

OCR

Choose character set from 28 languages
 Special characters, handwritten text recognition

Symbol Search

Settings

Symbol search and extraction/replacement with automatic attribute assignment
 Parameter files (load, edit, save)

<input checked="" type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Color Transparency		Draw quadrangle or polygon area and fill with selectable transparent color.
	Settings	0 thru 100 % transparency
Redlining		Redlining objects: Ellipse, arrow, cloud, transparent Head line and comment text input Free positioning of head line text Pick entity to convert to redlining object User access control and rights configuration Redlining save and export
	Vectors	Execute scripts Vectorization Export to vector file Rasterize
Batch Processing	Raster	Automatic Cleanup (Despeckle/Fill holes), Automatic Deskew, Smooth, Invert, Mirror (horizontal), Rotate: 90°, 180°, 270°, Despeckle: 1 thru 128 pixels, Fill holes: 1 thru 128 pixels, Convert to other raster formats Rubber sheeting (multi point) execution Cut to paper format

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

VPstudio mono (additional Specifications)

Import Formats	Raster	Only b/w images
Export Formats	Raster	Only b/w images
Direct Scanner Interface		CalComp, Colortrac, Context, Océ, Vidar, Xerox
Add. General Functions		<ul style="list-style-type: none"> Page control Symbol library Command script Rasterize entities Trim, autotrim, extend entities Chamfer, Fillet Cut, break entities Build corner between entities Stamp Compare revisions
User Commands		<ul style="list-style-type: none"> Customize toolbar commands Execute single commands, command sequences, scripts, other applications
Table Recognition		<ul style="list-style-type: none"> Modify shape and content of raster tables Convert table in vectors
Functions of Raster Editor		<ul style="list-style-type: none"> Click-select, raster entities Select raster objects Modify, move, copy, combine raster entities/objects Split raster file Merge, adjust 2 raster files Rubber sheeting (4 point, multi point) Smooth entities with raster selection (arc, circle, line) Fill raster Filter: morphology, smooth raster Raster symbol search

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Functions of Vector Editor	<p>Multiline Text: create, move, rotate, scale</p> <p>Edit objects: Array, offset</p> <p>Edit, combine, adjust:</p> <p style="padding-left: 20px;">line, polyline, spline, arc, circle, ellipse</p> <p>Edit linetypes, text</p> <p>Review texts</p> <p>Create/edit, explode, insert blocks</p> <p>Create and edit block attributes</p> <p>Create, explode, erase hatch/solids</p> <p>Build corners between elements</p> <p>Trim elements</p> <p>Smooth transitions between elements</p> <p>Adjust, align text</p> <p>Transform Arcs, Circles, Ellipses, Splines into Polylines</p>
Dimensions	<p>Linear, aligned, radial, diameter, angular, continue, baseline</p> <p>Dimension style manager</p> <p>Automatic mode, manual mode</p>
Vectorization	<p>Line, arc, circle, ellipse extraction</p> <p>Small circle recognition/replacement</p> <p>Line width (weight) classification</p> <p>Line straightening, line chaining</p> <p>Line type recognition: dashed, dash-dotted</p> <p>Element and line width assignment to layers</p> <p>Angle correction</p> <p>Gap jump</p> <p>Coord snap</p> <p>Arrowhead, Connection dot (donut) recognition</p> <p>Hatch extraction</p> <p>Text recognition (OCR)</p>
Area	File, window or polygon area on b/w or active color
Methods of Vectorization	<p>Centerline</p> <p>Outline</p> <p>Centerline/outline</p>
Threshold	selectable 5 thru 63 pixels
Accuracy	± 1 pixel = ± 0.0635 mm = ± 2.5 mils (@ 400 DPI)
Wizard	Support with parameter setting
Tracing	<p>With or without erasure of raster background</p> <p>CAD entities (line, arc, circle)</p> <p>Contour line</p> <p>Dashed contour line</p>
Settings	<p>Produce splines</p> <p>Straightening parameter</p> <p>Assign elevation</p> <p>Vectorization method</p>

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

OCR		Choose character set from 28 languages Special characters, handwritten text recognition
Symbol Search		Symbol search and extraction/replacement with automatic attribute assignment
	Settings	Parameter files (load, edit, save)
Redlining		Redlining objects: Ellipse, arrow, cloud, transparent Head line and comment text input Free positioning of head line text Pick entity to convert to redlining object User access control and rights configuration Redlining save and export
Batch Processing	Vectors	Execute scripts Vectorization Export to vector file Rasterize
	Raster	Automatic Cleanup (Despeckle/Fill holes), Automatic Deskew, Smooth, Invert, Mirror (horizontal), Rotate: 90°, 180°, 270°, Despeckle: 1 thru 128 pixels, Fill holes: 1 thru 128 pixels, Convert to other raster formats Rubber sheeting (multi point) execution Cut to paper format

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

VPlite (additional Specifications)

Import Formats	Raster	Only b/w images, limited size
Export Formats	Raster	Only b/w images, limited size
Raster Image Formats		Up to A2 ("C") @ 300 DPI, i.e. 16,000 x 16,000 pixels max., total 36 million pixels
Add. General Functions		Symbol library Rasterize entities Trim, autotrim, extend entities Chamfer, Fillet Cut, break entities Build corner between entities
Functions of Raster Editor		Click-select, raster entities Select raster objects Modify, move, copy, combine raster entities/objects Rubber sheeting (4 point, multi point) Smooth entities with raster selection (arc, circle, line) Fill raster Filter: smooth raster
Functions of Vector Editor		Multiline Text: create, move, rotate, scale Edit objects: Array, offset Edit, combine, adjust: line, polyline, spline, arc, circle, ellipse Edit linetypes, text Review texts Create/edit, explode, insert blocks Create and edit block attributes Create, explode, erase hatch/solids Build corners between elements Trim elements Smooth transitions between elements
Vectorization		Line, arc, circle, ellipse extraction Small circle recognition/replacement Line width (weight) classification Line straightening, line chaining Line type recognition: dashed, dash-dotted Element and line width assignment to layers Angle correction Gap jump Coord snap Arrowhead, Connection dot (donut) recognition Hatch extraction Text recognition (OCR)

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Vectorization	Area	File, window or polygon area on b/w or active color
	Methods of Vectorization	Centerline Outline Centerline/outline
	Threshold	selectable 5 thru 63 pixels
	Accuracy	± 1 pixel = ± 0.0635 mm = ± 2.5 mils (@ 400 DPI)
	Wizard	Support with parameter setting
Tracing		With or without erasure of raster background CAD entities (line, arc, circle) Contour line Dashed contour line
	Settings	Produce splines Straightening parameter Assign elevation Vectorization method
OCR		Choose character set from 28 languages Special characters, handwritten text recognition
Symbol Search		Symbol search and extraction/replacement with automatic attribute assignment
	Settings	Parameter files (load, edit, save)

<input type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

VPraster (additional Specifications)

Direct Scanner Interface	CalComp, Colortrac, Context, Océ, Vidar, Xerox
Add. General Functions	<ul style="list-style-type: none"> Symbol library Rasterize entities Color conversion RGB/PAL, PAL/RGB, view palette Trim, autotrim, extend entities Chamfer, Fillet Cut, break entities Build corner between entities Stamp Compare revisions
User Commands	<ul style="list-style-type: none"> Customize toolbar commands Execute single commands, command sequences, scripts, other applications
Table Recognition	<ul style="list-style-type: none"> Modify shape and content of raster tables Convert table in vectors
Functions of Raster Editor	<ul style="list-style-type: none"> Click-select, raster entities Select raster objects Modify, move, copy, combine raster entities/objects Split raster file Merge, adjust 2 raster files Rubber sheeting (4 point, multi point) Smooth entities with raster selection (arc, circle, line) Fill raster (b/w, colors) Filter: morphology, smooth raster
Functions of Vector Editor	<ul style="list-style-type: none"> Multiline Text: create, move, rotate, scale Edit objects: Array, offset Edit, combine, adjust: <ul style="list-style-type: none"> line, polyline, spline, arc, circle, ellipse Edit linetypes, text Review texts Create/edit, explode, insert blocks Create and edit block attributes Create, explode, erase hatch/solids Build corners between elements Trim elements Smooth transitions between elements Adjust, align text Linear, aligned, radial, diameter, angular, continue, baseline Dimension style manager Automatic mode, manual mode
Dimensions	

<input type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Color Operations

Filter: pre-defined (Median, Sharpen, etc.)
 custom filter up to size 7×7 pixels
 Color reduction: automatic/interactive/minor colors
 Color separation
 Color classification
 Load/save palette
 Contrast/brightness/gamma correction

Tracing

On b/w or active color
 With or without erasure of raster background (b/w):
 CAD entities (line, arc, circle)
 Contour line
 Dashed contour line

Settings

Image settings for definition of the active color
 Produce splines
 Straightening parameter
 Assign elevation
 Vectorization method

OCR

Choose character set from 28 languages
 Special characters, handwritten text recognition

Color Transparency

Draw quadrangle or polygon area and fill with selectable transparent color.

Settings

0 thru 100 % transparency

Redlining

Redlining objects:
 Ellipse, arrow, cloud, transparent
 Head line and comment text input
 Free positioning of head line text
 Pick entity to convert to redlining object
 User access control and rights configuration
 Redlining save and export

Batch Processing

General

Execute scripts

Vector

Rasterize

Raster

Automatic Cleanup (Despeckle/Fill holes),
 Automatic Deskew,
 Smooth,
 Invert, Mirror (horizontal),
 Rotate: 90°, 180°, 270°,
 Despeckle: 1 thru 128 pixels,
 Fill holes: 1 thru 128 pixels,
 Convert to other raster formats
 Rubber sheeting (multi point) execution
 Cut to paper format

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

SPECIFICATIONS

General Specifications for all VPmap Series Products

Import Formats	Raster	GeoTIFF, JPG, ECW, MrSID, and others (see Appendix)
	Vector	SHP, MIF, DXF, DWG, DGN, and others (see Appendix)
	Hybrid (Raster + Vector)	RVD (softelec format), RasterDWG, CGM, VCF, VCI
	Scanner Interface	Large Format Scanner Interface (see Appendix) TWAIN GeoTIFF, GIF, JPG, and others (see Appendix)
Export Formats	Raster	
	Vector	SHP, MIF, DXF, DWG, DGN, and others (see Appendix)
	Hybrid (Raster + Vector)	RVD (softelec format), RasterDWG/RDWG, CGM
Raster Image Formats		No real limitation: 16 million x 16 million pixels max.
General Functions		Multi document interface Multi page documents Project Bar Command line interface Layer, linetype, text style, width, color manager Image settings User coordinate system (user units, scale, projection) Coord snap Grid, grid snap Ortho, polar snap Raster and vector snap Measure: distance, angle, area, length Undo, Redo, Redraw Cut/copy/paste, drag'n drop Properties (view, modify) Select, delete entities Quick Selection Stamp Compare revisions Attributes: create, import, export, assign, search Build corners between elements Trim, extend elements Chamfer, Fillet

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Functions of Raster Editor

Auto Deskew and Despeckle
 Window/Polygon cut, crop,
 Cut to paper format,
 Deskew raster file
 Rotate raster file: 90°, 180°, 270°, arbitrary angle
 Mirror, Invert raster file
 Scale drawing
 Despeckle raster file/window
 Fill holes in raster file/window
 Filter: morphology, smooth raster
 Split / Mosaic raster file
 Merge, adjust 2 raster files

Functions of Raster Editor

Rubber sheeting (4 point, multi point)
 Smooth entities with raster selection (arc, circle, line)
 Fill raster (b/w, colors)

Raster Editing

Click-select raster entities
 Select raster objects
 Modify, move, copy, combine raster entities/objects
 Copy, Move, Erase raster
 Draw raster entities
 Edit text

Raster Object

Copy to, Paste from symbol library
 Create Raster Object with raster selection
 Move, Copy, Scale, Rotate raster object

Functions of Vector Editor

Select vector entities
 Move, copy, scale, rotate, mirror, offset, array entities
 Draw: line, polyline, mline, spline, arc, circle, ellipse,
 quadrangle or polygon area
 Edit, combine, adjust:
 line, polyline, polygon, spline, arc, circle, ellipse
 Insert: arrowhead, point (donut), attribute
 Entities: adjust, move, copy
 Modify layer assignments
 Edit linetypes, text
 Review texts
 Create/edit, explode, insert blocks
 Create and edit attributes
 Create, modify, explode, erase hatch/solids
 Smooth transitions between elements
 Assign and check elevation
 Text: create, move, rotate, scale, adjust
 Regenerate polylines, polygons
 Transform arc, circle, ellipse, spline to polyline
 Vector Cleanup, elements and topology

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Dimensions		Linear, aligned, radial, diameter, angular, continue, baseline Dimension style manager Automatic mode, manual mode
Color Operations		Filter: pre-defined (Median, Sharpen, etc.) custom filter up to size 7×7 pixels Color reduction: automatic/interactive/minor colors Color separation Color classification Load/save palette Contrast/brightness/gamma correction Automatic binarization
Color Transparency		Draw quadrangle or polygon area and fill with selectable transparent color.
	Settings	0 thru 100 % transparency
OCR		Choose character set from 28 languages Special characters, handwritten text recognition
Tracing		On b/w or active color With or without erasure of raster background (b/w): CAD entities (line, arc, circle) Contour line, polygon, multiple polygons Dashed contour line
	Settings	Image settings for definition of the active color Produce splines Straightening parameter Assign elevation Vectorization method Zoom window Post processing
CAD Settings		Object snap modes Length and dimension arrowhead Hatch: single/cross, angle, line distance, solids Transparency: on/off, fix/variable Point size and style
User Commands		Customize toolbar commands Execute single commands, command sequences, command scripts, other applications
Table Recognition		Modify shape and content of raster tables Convert table in vectors

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Redlining		<p>Redlining objects:</p> <ul style="list-style-type: none"> Ellipse, arrow, cloud, transparent Head line and comment text input Free positioning of head line text Pick entity to convert to redlining object User access control and rights configuration Redlining save and export
Batch Processing	General	Execute Scripts
	Vector	Rasterize
	Raster	<ul style="list-style-type: none"> Automatic Cleanup (Despeckle/Fill holes), Automatic Deskew, Invert, Mirror (horizontal), Smooth, Rotate: 90°, 180°, 270°, Despeckle, Fill holes Convert to other raster formats Rubber sheeting (multi point) execution Cut to paper format
Graphical User Interface		<ul style="list-style-type: none"> Command input via mouse, keyboard (command line) DDE/OLE interface Toolbars moveable and customizable Online help
Graphical Display		<ul style="list-style-type: none"> Graphical resolution according to OS and hardware ZOOM and PAN function Bird's Eye Overlay of raster data and vectors Modification of presentation colors (foreground, cursor, background, grips, etc.)
Plot, Print		<ul style="list-style-type: none"> Whole drawing, current view, paper format Scaling: fit paper/custom scaling factor Raster data and/or vector data, selectable through layer settings. Linewidth Preview
Operating Systems		<ul style="list-style-type: none"> Windows 7 or higher (32bit + 64bit) AutoCAD 2010 - 2020 (32bit+64bit) BricsCAD V18 - V20 (32bit + 64bit) (pro+platinum) ZWCAD 2020
Recommended Hardware		Windows 7 compatible PC (8 GB) or better

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

VPmap pro (additional Specifications)

Vectorization	Area	File, window or polygon area on b/w or active color
	Methods of Vectorization	Centerline Outline Centerline/outline
	Threshold	selectable 5 thru 63 pixels
	Advanced Image Settings	Select color/gray scale pattern for active color
	Accuracy	± 1 pixel = ± 0.0635 mm = ± 2.5 mils (@ 400 DPI)
	Wizard	Support with parameter setting
Vector Post Processing		Line, arc, circle, ellipse extraction Small circle recognition/replacement Line width (weight) classification Line straightening, line chaining Line type recognition: dashed, dash-dotted Polyline type recognition: dashed, dash-dotted Element and line width assignment to layers Angle correction Gap jump Coord snap Arrowhead, Connection dot (donut) recognition Hatch extraction Text recognition (OCR)
Symbol Search		Symbol search and extraction/replacement with automatic attribute assignment
	Settings	Parameter files (load, edit, save)
Batch Processing	Vectors	Vectorization and vector post processing Export to vector file

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

APPENDIX

Supported Raster Formats VPHybridCAD

(R = only Import; W = only Export; R / W = Import + Export)

Extension	Format Name	Black&White	Color	Multipage
BMP	Windows Bitmap	R / W	R / W	
B4	Boeing EDMICS	R		
C4	EDMICS	R / W		
CAL, CG4, RST	Cals Raster	R / W		
CIT, RLE, TG4	Intergraph	R / W		
COT, CRL	Intergraph		R / W	
DCX	DCX Raster	R	R	Yes ²
G3, G4, RLN	GTX Raster	R		
GIF	Internet GIF	R / W	R / W	
GP4	Cals Raster	R / W		
GR4	ABB Group 4	R		
HRF	Hitachi Raster	R		
IFF, ILBM	Amiga IFF	R	R	
IG4, IGS	Image Systems	R	R (Gray)	
IM1	Sun Raster	R		
IM8	Sun Raster		R	
JPG, JPEG	JPEG		R / W	
MIL	Cals Raster	R / W		
NIF	Navy TIFF	R	R	
OPT	Optigraphics	R		
PDF	Adobe PDF	R/W ¹	R/W ¹	Yes ²
PNG	PNG Raster	R / W	R / W	
PCX	PCX Raster	R / W	R / W	
RAS	Sun Raster	R	R	
RLC	Image Systems	R / W		
RLC	Xerox RLC	R		
RLE	Intergraph	R / W	R / W	
RLN	M.O.S.S. RLN	R / W		
RNL	GTX Raster	R		
SUN	Sun Raster	R	R	
TGA	Targa Graphics	R	R	
TIF, TIFF	TIFF Raster	R / W	R / W	Yes ²
VIF	ABB Raster	R		

¹ VPCAD: only Raster

² VPCAD: only single page

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Supported Raster Formats VPmap Series

(R = only Import; W = only Export; R / W = Import + Export)

Extension	Format Name	Black&White	Color	Multipage
BIL	GeoSPOT		R	
BMP	Windows Bitmap	R / W	R / W	
B4	Boeing EDMICS	R		
C4	EDMICS	R / W		
CAL, CG4, RST	Cals Raster	R / W		
CIT, RLE, TG4	Intergraph	R / W		
CRL, COT	Intergraph		R / W	
DCX	DCX Raster	R	R	Yes
ECW, ERS	ER Mapper	R / W	R / W	
FST, FF7, HD	Landsat		R	
G3, G4, RNL	GTX Raster	R		
GIF	Internet GIF	R / W	R / W	
GIS, LAN	Erdas Raster		R	
GOE	NOAA GOES		R	
GP4	Cals Raster	R / W		
GR4	ABB Group 4	R		
HRF	Hitachi Raster	R		
IDC	Core IDC		R	
IFF, ILBM	Amiga IFF	R	R	
IG4, IGS	Image Systems	R	R (Gray)	
IM1	Sun Raster	R		
IM8	Sun Raster		R	
JP2, J2K, J2C	JPEG 2000		R / W	
JPG, JPEG	JPEG		R / W	
MIL	Cals	R / W		
NIF	Navy TIFF	R	R	
OPT	Optigraphics	R		
PDF	Adobe PDF	R/W ¹	R/W ¹	Yes ²
PNG	PNG Raster	R / W	R / W	
PCX	PCX Raster	R / W	R / W	
RAS	Sun Raster	R	R	
RLC	Image Systems	R / W		
RLC	Xerox RLC	R		
RLN	M.O.S.S. RLN	R / W		
SID	LizardTech MrSID	R	R	
SUN	Sun Raster	R	R	
TGA	Targa Graphics	R	R	
TIF, TIFF	TIFF Raster	R / W	R / W	Yes
VIF	ABB Raster	R		

¹ VPCAD: only Raster

² VPCAD: only single page

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

Supported Vector Formats VPHybridCAD

Extension	Format Name	VPwin		VPacad	
		Vector	Hybrid*	Vector	Hybrid*
CGM	Computer Graphics Metafile	R / W	R / W	R	R
DGN	Microstation Design File	R / W	R / W	R	R
DWG	AutoCAD	R / W			
DWG	Raster-DWG	R / W	R / W		R / W
DWT	AutoCAD	R		R	
DXF	AutoCAD	R / W			
HP2, PLT, PRN	HPGL/2 Plot File	R		R	
IGES	2-D IGES	W		W	
SVG,SVGZ	Scaleable Vector Graphics	W	W		
RVD	Softelec Native Format	R / W	R / W	R	R
VCF	Old Softelec Native Format	R	R	R	R
VCI	Old Softelec Native Format	R	R	R	R

*) Hybrid = Vector + Raster

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

Supported Vector Formats VPmap Series

Extension	Format Name	VPwin		VPacad	
		Vector	Hybrid*	Vector	Hybrid*
CGM	Computer Graphics Metafile	R / W	R / W	R	R
DGN	Microstation Design File	R / W	R / W	R	R
DWG	AutoCAD	R / W			
DWG	Raster-DWG	R / W	R / W		R / W
DWT	AutoCAD	R		R	
DXF	AutoCAD	R / W			
HP2, PLT, PRN	HPGL/2 Plot File	R		R	
IGES	2-D IGES	W		W	
MIF	MapInfo	R / W		R	
SIM	SIMA	R / W		R	
SVG,SVGZ	Scaleable Vector Graphics	W	W		
RVD	Softelec Native Format	R / W	R / W	R	R
SHP, GEN	ESRI	R / W		R	
VCF	Old Softelec Native Format	R	R	R	R
VCI	Old Softelec Native Format	R	R	R	R

*) Hybrid = Vector + Raster

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Individual Extensions for File Formats (Alias Extensions)

VP software allows you to load and process files which were saved in one of the above file formats, however, with other extensions (e.g. files in the **TIFF Raster** format with the extension ***.TR**). In order to load and process these files you have to create a text file named **VP.INI** in your program directory (e.g. **c:\program files\softelec\vpstudio v16**) with the following content:

```
[Import]
TR="My TIFF File (*.TR),*.TIF"
```

General:

```
<Alias Extension>=<File Description> (*.<Alias Extension>),*.<VP Extension>"
```

'Alias Extension' specifies the individual extension of a saved file. 'VP Extension' specifies one of the standard **VP** file formats.

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Supported Scanners

The following table contains the currently supported large format scanners via the direct scanner interface:

Manufacturer	BW / Grayscale	Color
CalComp	ScanPlus III x00 ScanPlus III 80 ScanPlus III x00 -T ScanPlus III 800 - T PLUS ScanPlus III 800 - T COPY	ScanPlus III x10 - C ScanPlus III x10 - C Copy
Colortrac		CT 36-400 340 GX+ 360 CX / GX (+) 380 CX / GX 3640 GX / 3680 GX 4260 GX / 4280 GX 4860 GX / 5480 GX SmartLF 4080 M/C/E SmartLF Cx M/C/E SmartLF Gx 25/42 (T) M/C/E
Contex	FSS x000 MP FSS x200 ^{DSP} TDS 8000 ^{DSP} FSS x300 (COPY/PLUS) ^{DSP} FSS 225x PANORAMA All Crystal Models All Premier Models	FSC x000 ^{DSP} FSC x010 (COPY) ^{DSP} FSC x040 CHROMA FSC x050 MAGNUM All Chameleon Models All Chroma Models All Copymate Models All Cougar Models All Hawk-eye Models All Magnum Models All Puma Models All Toucan Models All HD Models All SD Models

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Manufacturer	BW / Grayscale	Color
HP	All Contex OEMs	All Contex OEMs
Océ	G60x5 G60x5-S G6035-Sx G6045-S 47xx MS 403x	4770 / 4780 CS 40xx CS 41xx (Q / S) CS 4052
Vidar	TruScan 800 TruScan Flash TruScan Select Flash 600 (e+) Surveyor 600 (e) TruScan Select	TruScan Spectra TruScan TITAN All Select Models All Atlas Models All Latitude Models All Lynx Models All Nova Models All Spectra Models Titan H36 (+) / 600e All HD Models All SD Models
XEROX	7346 7356	

If your scanner is not listed above or has been updated and requires a new driver/interface, please visit our website for news regarding third party scanners. You can download new drivers, which may support your scanner or improve the support.

TWAIN Interface

VP software offers a TWAIN interface. If your Scanner does also supply a TWAIN interface it can be used to connect to VP software. You should find further information on the TWAIN interface in your Scanner documentation

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Default Command Alias Names

Command Header English	Alias Name Windows, ACAD	Alias Name Windows
VPAUTODESKEW	VPRAD	RAD
VPCLEAN	VPRCL	RCL
VPCROP	VPRCR	RCR
VPCUTWINDOW	VPRC	RC
VPDESKEW	VPRD	RD
VPDRAWARC3POINT	VPA3	A3
VPDRAWARCCENTRAD	VPA	A
VPDRAWARCTANGCENT	VPAT	AT
VPDRAWARROWDIM	VPAR	AR
VPDRAWARROWPOINT	VPARP	ARP
VPDRAWCIRCLE2POINT	VPC2	C2
VPDRAWCIRCLE3POINT	VPC3	C3
VPDRAWCIRCLECENTRAD	VPC	C
VPDRAWCPOLY	VPPC	PC
VPDRAWDONUT	VPD	D
VPDRAWELLIPSE	VPE	E
VPDRAWLINE	VPL	L
VPDRAWMTEXT	VPM	M
VPDRAWOPTIONS	VPDO	DO
VPDRAWPOLY	VPP	P
VPDRAWPOLYGON	VPPO	PO
VPDRAWRECTANGLE	VPR	R
VPDRAWSPLINE	VPSP	SP
VPDRAWTEXT	VPT	T
VPEXIT	VPX	X
VPHMIRROR	VPRH	RH
VPINVERT	VPRI	RI
VPMORPHO	VPRM	RM
VPNEXPAGE	VPN	N
VPOPEN	[Ctrl-O]	[Ctrl-O]
VPPOLYCROP	VPRCRP	RCRP
VPPOLYCUT	VPRCP	RCP
VPPREVPAGE	VPPV	PV
VPRFE	VPRR	RR
VPROTATE	VPRO	RO
VPROTATE90	VPR9	R9
VPSAVE	[Ctrl-S]	[Ctrl-S]
VPSAVEAS	VPSA	SA
VPSCALE	VPRSC	RSC
VPSMOOTH	VPRSM	RSM
VPSPECKLES	VPRS	RS
VPVECTORIZE	VPV	V
VPVMIRROR	VPRV	RV

Use this format for modifying or entering new Command Aliases saved to the file **ALIASES.PGP** (SUPPORT subdirectory):

VP<AliasName>,*<CommandName>

Keyboard Shortcuts

All keyboard shortcuts are listed in the menu next to their commands, too

Function keys

[F1]	Help
[Shift] + [F1]	Context Help
[F2]	Measure
[F3]	Properties
[Shift] + [F3]	Image Settings
[F4]	Show / hide Raster
[F5]	Show / hide Vectors
[F8]	Raster Selection Settings
[Shift] + [F8]	Drawing Aids
[F9]	Coord Snap on/off
[Shift] + [F9]	Show / hide Grid
[F10]	Ortho Snap on/off
[Shift] + [F10]	Polar Snap on/off
[F11]	Raster Snap on/off
[F12]	Vector Snap on/off

Cursor control keys

[↑]	Scroll up
[↓]	Scroll down
[←]	Scroll left
[→]	Scroll right
[Shift] + [↑]	Page up
[Shift] + [↓]	Page down
[Shift] + [←]	Page left
[Shift] + [→]	Page right

Zoom functions

[Mult] (Numeric keypad)	Zoom all
[Div] (Numeric keypad)	Zoom pixel
[5] (Numeric keypad)	Zoom window
[Space] + left mouse button pressed	Pan dynamic

Multipage functions

[Pg Up]	Previous page
[Pg Dn]	Next page
[Home]	First page
[End]	Last page

Draw order

[Shift] + [Pg Up]	Draw in front
[Shift] + [Pg Dn]	Draw in background

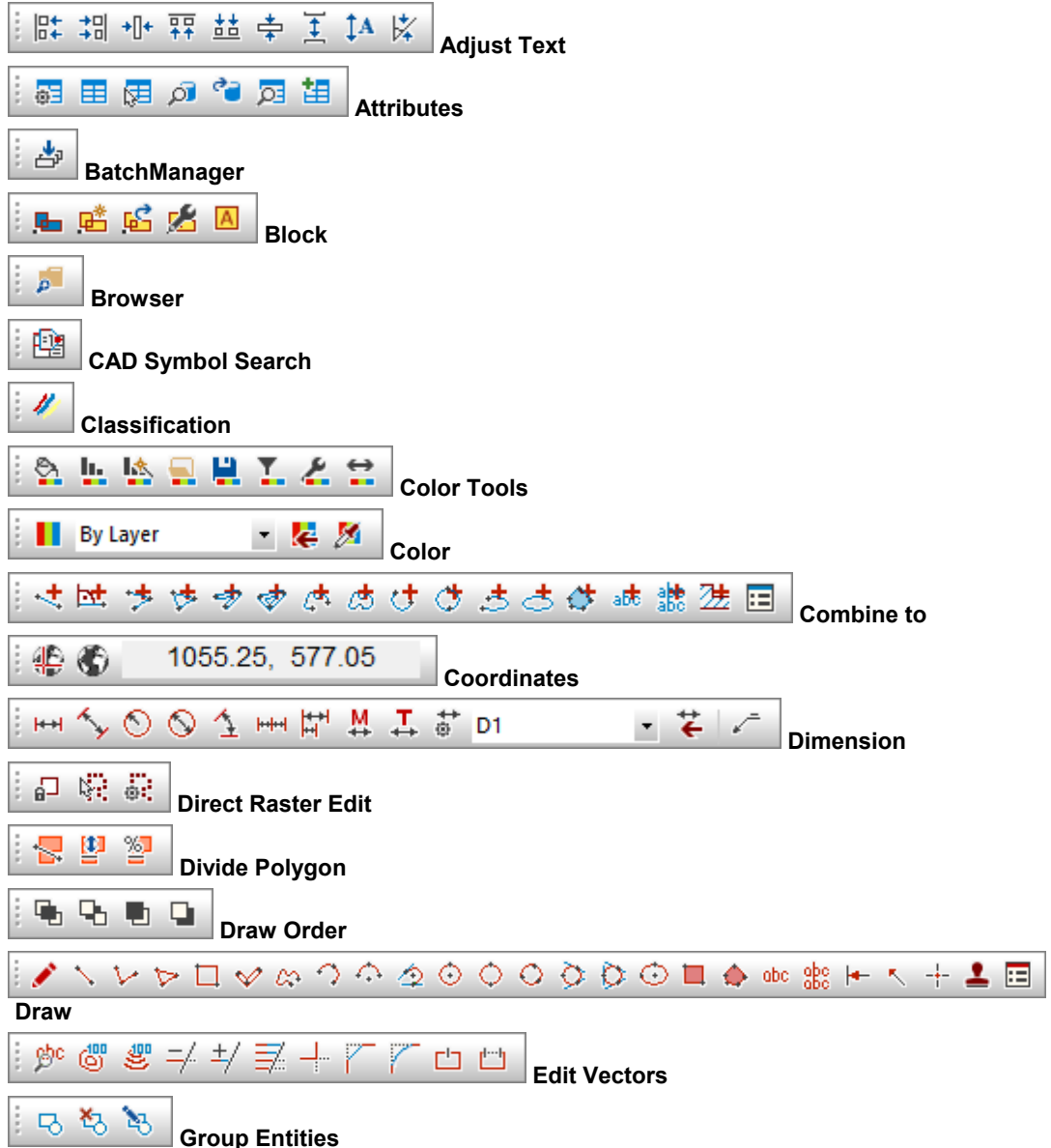
Various functions

[Ctrl] + [A]	Select all
[Ctrl] + [C]	Copy
[Ctrl] + [E]	Erase raster background
[Ctrl] + [F]	Quick select
[Ctrl] + [N]	New
[Ctrl] + [O]	Open
[Ctrl] + [P]	Print
[Ctrl] + [R]	Redraw
[Ctrl] + [S]	Save
[Ctrl] + [T]	Combine to text
[Ctrl] + [V]	Paste
[Ctrl] + [X]	Cut
[Ctrl] + [Y]	Redo
[Ctrl] + [Z]	Undo
[Ctrl] + [Ins]	Copy
[Shift] + [Del]	Cut
[Shift] + [Ins]	Paste
[Shift] + [Enter]	Show / activate command line
[Del]	Delete
[Esc]	Cancel
[Alt] + [Backspace]	Undo
[Win Menu]	right mouse click

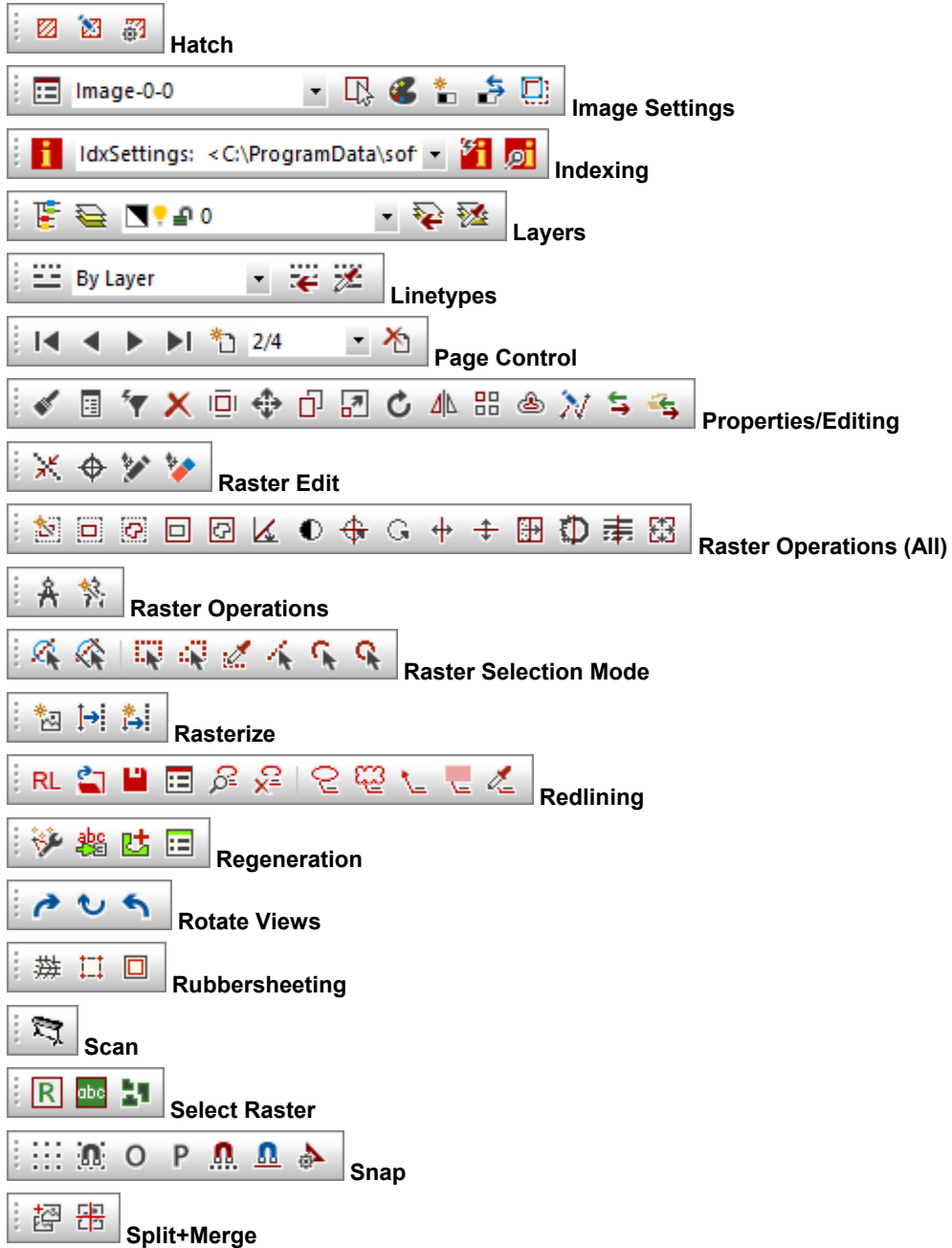
■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

Toolbars (overview)

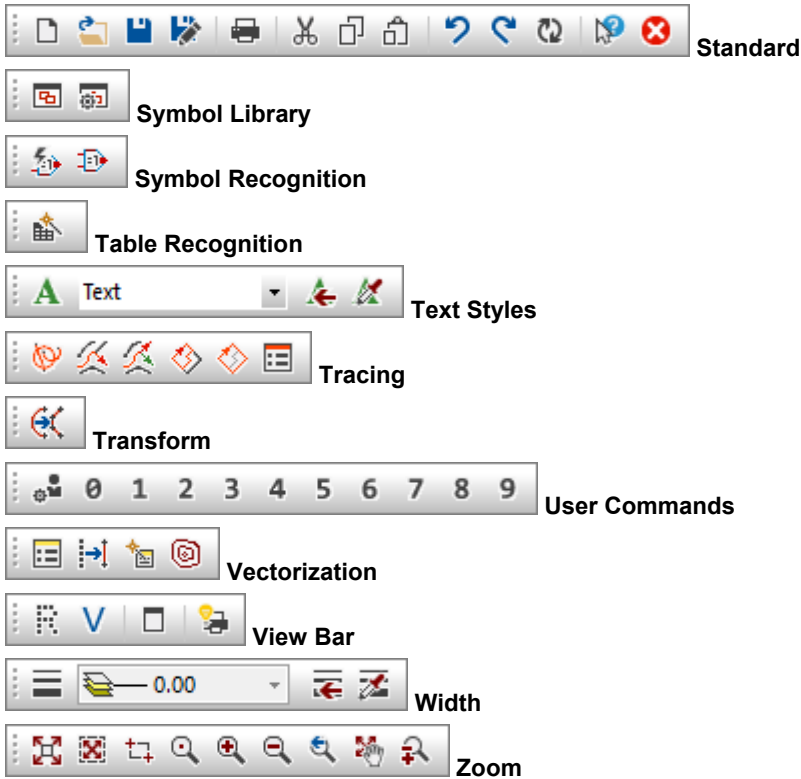
The overview shows all toolbars of the VP software. Depending from the installed product some toolbars might be reduced or not available.



■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		



■ VPstudio	■ VPraster	■ VMap pro
■ VPstudio mono	■ VPraster edit	■ VMap
■ VPlite		



Filter Parameter

CGM Export

Registry Entries

Path: \Filter\CGM

Version:	1/3/4	(CGM Version, default: 3)
IntegerMode:	0 1	(Real - 32bit floating point) (Integer)
32bitMode:	0 1	(16 bit Integer) (32 bit Integer)
LayerInfo:	0/1	(Keep Layer Information no/yes, default: 1)
ExportRaster	0/1	(Write out Raster no/yes, default: 0)
RLE:	0 1	(b/w Raster uncompressed) (b/w Raster RLE compressed)
ColorRLE:	0 1	(colored Raster uncompressed) (colored Raster RLE compressed)

Parameter

"/v <version> /int <integermode> /long <32bitmode> /r <raster> /rle <compression> /colorrle <compression> /laycol <layercolor>"

/v <version>	1/3/4	(CGM version)
/int <integermode>	0 1	(real - 32bit floating point) (integer)
/long <32bitmode>	0 1	(16 bit integer) (32 bit integer)
/r <raster>	0/1	(write raster data no/yes)
/rle <compression>	0 1	(b/w raster uncompressed) (b/w raster RLE compressed)
/colorrle <compression>	0 1	(colored Raster uncompressed) (colored Raster RLE compressed)
/laycol <layercolor>	0/1	(keep layer info via colors no/yes)

CGM Import

Registry Entries

Path: \Filter\CGM

UseLayerWidth:	0	(by Entity)
	1	(by Layer)
HatchSpacing:	[value]	(hatch pattern - spacing, default: 1.0)
HatchScaling:	[value]	(hatch pattern - scaling, default: 1.0)
DefaultDPI:	[value]	(default resolution for raster images, default: 72)
DefaultLTypeScaling:	[value]	(linetype scaling - default linetypes, default: 1.0)
EmbeddedLTypeScaling:	[value]	(linetype scaling - embedded linetypes, default: 1.0)
BezierAccuracy:	[value]	(interpolation accuracy, default: 20)

Parameter

```
" /widthbylayer <linewidth> /spacing <hatchspacing> /scaling <hatchscaling>
/dpi <resolution> /defaultltypescale <linetype-scaling>
/embeddedltypescale <linetype-scaling> /bezieraccuracy <accuracy>"
```

/widthbylayer <width>	0	(by entity)
	1	(by layer)
/spacing <spacing>	[value]	(hatch pattern - spacing)
/scaling <scaling>	[value]	(hatch pattern - scaling)
/dpi <resolution>	[value]	(default resolution for raster images)
/defaultltypescale <scaling>	[value]	(linetype scaling - default linetypes)
/embeddedltypescale <scaling>	[value]	(linetype scaling - embedded linetypes)
/bezieraccuracy <accuracy>	[value]	(interpolation accuracy)

DGN Export

Registry Entries

Path: \Filter\DGN

Seedfile

UseSeedfile: 0/1 (Use Seedfile no/yes, default: 0)
SeedfileV8: [text] (name and path of seedfile, default: "")

Line Widths

LineWeightMode: 0 **(Set all Line Widths to 1 Pixel)**
 1 (Convert Line Widths)
MM2Pixel: [value] (conversion factor: 1mm to ... Pixel, default: 1)

Raster

ExportRaster: 0 (Do not save Raster)
 1 **(Embed Raster in DGN-File)**
 2 (Save Raster in extra File(s))
 4 (Save Raster in extra File(s) – Save Raster File(s) automatically)
WriteBlackAndWhiteRasterUncompressed: 0 **(compress embedded raster)**
 1 (do not compress embedded raster)

Attributes

ExportAttributes: 0/1 (Export Attributes as Tags no/yes, default: 1)
AttributetextHeight: [value] (Text Height of Tags, default: 3.0)
WriteTagsAndAttributes: 0/1 (Export Attributes as Tags and DGN Attributes no/yes, default: 1)

Miscellaneous

ExplodeDimensions: 0/1 (explode dimensions no/yes, default: 1)

Units

SU_AutoMode: 0 (Sub Units - Manual Mode)
 1 **(Sub Units depending on Master Units – Auto Mode)**

SU_Units: -6 (Picometers)
 -5 (Nanometers)
 -4 (Decimeters)
 -3 (Mils, milli inch)
 -2 (Microinches)
 -1 (Micrometers)
 1 **(Millimeters)**
 2 (Centimeters)
 3 (Meters)

4	(Kilometers)
5	(Inches)
6	(Feet)
7	(Yards)
9	(Miles)

Parameter

"/lwmode <linewidthmode> **/mm2pix** <linewidthfactor> **nodim** <explode>
/raster <rastermode> **/bwuncomp** <compression> **/attribs** <attributes> **/attheight** <textheight>
/tags <DGNattributes> **/autosu** <subunitsmode> **/su** <subunits> **/seed** <seedfile>"

/lwmode <linewidthmode>	0	(set line width to 1 pixel)
	1	(convert line widths)
/mm2pix <linewidthfactor>	[value]	(conversion factor: 1mm to ... Pixel)
/nodim <explode>	0/1	(explode dimensions)
/raster <rastermode>	0	(do not save raster)
	1	(embed raster)
	2	(save raster in extra file(s))
	4	(save raster in extra file(s) – save raster file(s) automatically)
/bwuncomp <compression>	0	(compress embedded raster)
	1	(do not compress embedded raster)
/attribs <attributes>	0/1	(export attributes as tags no/yes)
/attheight <textheight>	[value]	(text height of tags)
/tags <DGNattributes>	0/1	(export attributes as tags and DGN-attributes)
/autosu <subunitsmode>	0/1	(sub units auto mode no/yes)
/su <subunits>	-6 - 9	(sub units)
/seed <seedfile>	""	(do not use seedfile)
	[text]	(name and path of seedfile to use)

DGN Import

Registry Entries

Path: \Filter\DGN

Model Mode

LoadModel:

0	(Always load default model)
1	(Always load active model)
2	(Show list width all available models)

Linewidth

LinewidthScale: [value] (Scale linewidth by value, default: **10.0**)
 (negative value: Set all linewidths to 0.0)

Scaling

LinetypeScale: [value] (Scale linetypes by value, default: **1.0**)

Convert drawing

RenderMode:

0	(No conversion)
1	(Convert complex entities into basic entities)
3	(Convert complex entities, convert arcs and circles)
5	(Convert complex entities, convert text)
7	(Convert complex entities, convert arcs, circles, and text)

Parameter

"/mm <model> /lwz <linewidthmode> /lw <linewidthscale> /ls <linetypescale> /rm <rendermode>"

/mm <model>	0	(load default model)
	1	(load active model)
	2	(show list with all models)
/lwz <linewidthmode>	0/1	(set line widths to 0.0 no/yes)
/lw <linewidthscale>	[value]	(line widths scale factor)
/ls <linetypescale>	[value]	(linetype scale factor)
/rm <rendermode>	0	(no conversion)
	1	(Convert complex entities into basic entities)
	3	(Convert complex entities, convert arcs and circles)
	5	(Convert complex entities, convert text)
	7	(Convert complex entities, convert arcs, circles, and text)

DWG/DXF Export

Registry Entries

Path: `\Filter\DWG / \Filter\DXF`

On Override of existing files

OnlyUpdateRaster: 0/1 (Update/append only raster no/yes, default: 0)

File Format

Version: 13/14/2000/2004/**2007**/2010/2013/2018 (AutoCAD Version, default: **2007**)

Raster

Save Raster: 0 (Do not save Raster, default for DXF)
1 (Save in Raster DWG Format)
2 (Save in AutoCAD Format, default for DWG)

AutoSave ISM: 0/1 (Save Raster File(s) automatically no/yes, default: 0)

Conversion of VP entities

ConvertPolygon: 0 (Export Polygons as Hatches)
1 (Export Polygons as Polylines)

Seedfile

Seedfile: [text] (name and path of seedfile to use, default: "")

Character Set

ExportCodepage: 1 (Use system code page)
[value] (Windows code page)

DXF: Floating point precision

Precision_Auto: 0/1 (DXF: Automatic – Fit to actual drawing content no/yes, default: 1)

Precision: [value] (DXF: User defined – use ... digits, default: 16)

Parameter

"**/v** <version> **/r** <rastermode> **/conv** <rendermode> **/prec** <precision> **/seed** <seedfile>
/cp <codepage> **/up** <updateraster>"

/v <version> [value] (AutoCAD version)

/r <rastermode> 0 (do not save raster)
1 (save as RDWG)
2 (save in AutoCAD format)
3 (save in AutoCAD format, save raster files automatically)

/conv <rendermode>	0	(convert polygons to hatches)
	1	(convert polygons to polylines)
/prec <precision>	0	(DXF: calculate floating point precision automatically)
	[value]	(DXF: floating point precision)
/seed <seedfile>	[text]	(name and path of seedfile to use)
/cp <codepage>	[value]	(windows codepage)
/up <updateraster>	0/1	(Update/append only raster no/yes)

DWG/DXF Import

Registry Entries

Path: \Filter\DWG / \Filter\DXF

Layout Mode

ActiveLayout:	0	(Open drawing in model space mode)
	1	(Open drawing in saved layout)
	2	(Show list with all available layouts)
	3	(Open model space and all layouts – multipage mode)
	4	(Open all layouts except model space – multipage mode)

Convert drawing

RenderMode:	0	(No conversion)
	1	(Convert complex entities)
	2	(Convert complex entities, show warning dialog)
Render Curves:	0/1	(convert arcs and circles no/yes, default: 0)
Render text:	0/1	(convert text no/yes, default: 0)
Render Dashed:	0/1	(layout only: convert dashed lines no/yes, default: 1)
Render DashedLines:	0/1	(model only: convert dashed lines no/yes, default: 0)

Line widths

ImportLinewidth:	0	(Set all line widths to 0.0)
	1	(Do not convert line widths)

Password Protected Files

PasswordMode:	0	(Do not open password protected files)
	1	(Ask for the password on open)
	2	(Always use this password)

Password:	[text]	(crypted password, default: "")
------------------	--------	---------------------------------

Hatches

PatternPaths: [text] (name and path of hatch definition files *.pat, default: "")

Character Set

defaultCodePage: 0 (Determine character set automatically)
[value] (Always use this character set)

Measurement

Measurement: 0 **(Leave units unchanged)**
1 (Convert units according to current document settings)
2 (Units are in inch, scale with 25.4)
3 (Units are metric, scale with 1.0)

Miscellaneous

ReadDim: 0/1 (explode dimensions yes=0/no=1, default: 1)
LoadBlockdefs: 0/1 (layout only: read blockdefinitions no/yes, default: 0)
ReadEmptyLayout: 0/1 (layout only: load empty layouts no/yes, default: 0)
Render Paper Border: 0/1 (layout only: load paper borders no/yes, default: 1)

Parameter

"**/vm** <layout> **/rm** <conversion> **/rc** <curves> **/rt** <text> **/rd** <dashed> **/rdm** <dashed>
/rp <paperborder> **/lm** <linewidth> **/mm** <units> **/dim** <dimensions> **/blkdef** <blockdefs>
/rel <emptylayout> **/pp** <hatchfile> **/cp** <codepage> **/pm** <passwordmode> **/pw** <password>"

/vm <layout>	0	(load model space)
	1	(load active layout)
	2	(show list of all layouts)
	3	(load all layouts)
/rm <conversion>	0	(no conversion)
	1	(convert complex entities)
	2	(convert complex entities, show warning dialog)
/rc <curves>	0/1	(convert arcs and circles no/yes)
/rt <text>	0/1	(convert text no/yes)
/rd <dashed>	0/1	(convert dashed lines no/yes)
/rd <dashed>	0/1	(layout only: convert dashed lines no/yes)
/rdm <dashed>	0/1	(model only: convert dashed lines no/yes)
/rp <paperborder>	0/1	(layout only: load paper border no/yes)
/lm <linewidth>	0	(set all linewidths to 0.0)
	1	(do not modify linewidth)

/mm <units>	0	(leave units unchanged)
	1	(convert units according to current document settings)
	2	(units are in inch, scale with 25.4)
	3	(units are metric, scale with 1.0)
/dim <dimensions>	0/1	(explode dimensions yes=0/no=1)
/blkdef <blockdefs>	0/1	(layout only: read blockdefs no/yes)
/rel <emptylayout>	0/1	(load empty layouts no/yes)
/pp <hatchfile>	[text]	(name and path of hatch definition files *.pat)
/cp <codepage>	0	(determine character set automatically)
	[value]	(always use this character set)
/pm <passwordmode>	0	(do not open password protected files)
	1	(ask for the password on open)
	2	(always use this password)
/pw <password>	[text]	(password)

GIF Export

Registry Entries

Path: \Filter\Gif

Transparency:	0	(Do not write Transparency)
	1	(Transparency Palette Index)
	2	(Use Image Transparency)
	5	(Transparency by RGB value)
PaletteIndex:	0-255	(palette index, default: 0)
Red:	0-255	(color value, default: 0)
Green:	0-255	(color value, default: 0)
Blue:	0-255	(color value, default: 0)
MatchRGB:	0/1	(match nearest color no/yes, default: 0)

Parameter

""	(no transparency)
"/TRANS /PAL <palette index>"	(transparency by palette index)
"/TRANS /PAL"	(use image transparency)
"/TRANS /RGB <red green blue>"	(Transparency by RGB value)
"/TRANS /RGB <red green blue> /MATCH "	(Transparency by RGB value, match nearest color)

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

JPEG Export

Registry Entries

Path: \Filter\JPEG

Quality: 0-100 (Quality, default: **75**)

Parameter

/QUALITY <quality> [value] (Quality)

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

MIF Export

Registry Entries

Path: \Filter\MIF

Layer Settings

UseLayerNames: 0/1 (use layer name as filename no/yes, default: **1**)

MapInfo File Options

Version: [value] (file version, default: **300**)

Delimiter: [text] (delimiter, default: ,)

ConvPrecision: [value] (accuracy = value / 1000000, default: **100000**)

Coordinate System

Degrees: 0/1 (coordinates in degrees=1/from file=0, default: **1**)

Prototype: [text] (file)

CoordSys: [text] (projection data from file)

CoordFromDoc: 0/1 (coordinates from document, default: **0**)

Parameter

"/layernames <bylayer> **/version** <version> **/convprec** <accuracy> **/degrees** <degrees>
/delimiter <character> **/prototype** <file> **/coordsys** <coord.system>"

/layernames <bylayer> 0/1 (use layer name as filename no/yes)

/version <version> [value] (file version)

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

/convprec <accuracy> [value] (accuracy * 1000000)
/degrees <degrees> 0/1 (coordinates in degrees=1/from file=0)
/delimiter <character> [text] (delimiter)
/prototype <file> [text] (file)
/coordsys <coord.system> [text] (projection data from file)

<input checked="" type="checkbox"/> VPstudio	<input checked="" type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input checked="" type="checkbox"/> VPstudio mono	<input checked="" type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input checked="" type="checkbox"/> VPlite		

PDF Export

Registry Entries

Path: \Filter\PDF

General

PDFA: 0/1 (PDF/A conform no/yes, default: **0**)
Author: [text] (Author, default: "")
Subject: [text] (Subject, default: "")
Keywords: [text] (Keywords, default: "")

Placing/Extents

AtOrigin: 0 **(Keep Coordinates if possible)**
 1 (Move to Paper origin)
PaperFrame: [value] (Additional Frame, positive/negative value: on/off, default: **2.0**)

Compression Method

ColorCompression: 0 **(LZW)**
 1 (JPG)
 2 (uncompressed)
Quality: 0-100 (Quality, default: **75**)
BWCompression: 0 **(CCITT Group 4)**
 1 (uncompressed)

Parameter

"/col <colorcompression> /bw <bwcompression> /q <quality> /pdfa <PDFA> /origin <placing> /frame <margin>"

/col <colorcompression> 0 (uncompressed)
 1 (LZW)
 2 (JPG)

■ VPstudio	■ VPraster	■ VPmap pro
■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

/bw <bwcompression>	0	(uncompressed)
	4	(CCITT Group 4)
/q <quality>	0-100	(quality)
/pdfa <PDF/A>	0/1	(PDF/A conform)
/origin <placing>	0	(keep coordinates)
	1	(move to paper origin)
/frame <margin>	[value]	(additional margin, positive/negative value: on/off)

PDF Import

Registry Entries

Path: \Filter\PDF

AsImage:	0	(Read PDFObjects)
	1	(Convert into Raster Image)
DPI:	[value]	(Resolution, default: 200)
Extracttext:	0/1	(Try to extract text objects no/yes, default: 0)
ColorDepth:	1	(As Truecolor Image)
	2	(As Indexed (Paletted) Image)
	3	(As Gray Scale Image)
	4	(As b/w Image)
ConvertPoly:	0/1	(convert polylines to arcs/circles no/yes, default: 1)
FitTolerance:	[value]	(fit tolerance, default: 0.0002)

Parameter

"**/mode** <mode> **/dpi** <resolution> **/col** <colormode> **/text** <textconversion>
/convert <convertpolylines> **/tolerance** <fittolerance>"

/mode <mode>	0	(read PDF-Objects)
	1	(convert into raster image)
/dpi <resolution>	[value]	
/col <colormode>	1	(as RGB image)
	2	(as indexed image)
	3	(as gray scale image)
	4	(as b/w image)
/text <textconversion>	0/1	(convert text no/yes)
/convert <convpolylines>	0/1	(convert polylines to arcs/circles no/yes)
/tolerance <fittolerance>	[value]	(fit tolerance)

RVD Export

Registry Entries

Path: \Filter\RVD

Version: [value] (RVD compatible to)

- 1=VPHybridCAD V7
- 2=VPmap V1
- 3=VPHybridCAD V8
- 4=VPmap V2
- 5=VPHybridCAD V9/VPmap V3
- 6=VPHybridCAD V10
- 7=VPHybridCAD V11/VPmap V4
- 8=VPHybridCAD V12/VPmap V5
- **9=VPHybridCAD V13/VPmap V6**
- 10=VPHybridCAD V16/VPmap V9

Parameter

/v <Version>

/v <Version> [value] (file version)

<input type="checkbox"/> VPstudio	<input type="checkbox"/> VPraster	<input checked="" type="checkbox"/> VPmap pro
<input type="checkbox"/> VPstudio mono	<input type="checkbox"/> VPraster edit	<input checked="" type="checkbox"/> VPmap
<input type="checkbox"/> VPlite		

SHP/GEN (ESRI) Export

Registry Entries

Path: \Filter\ESRI

Shapefile Options

ExportFlags: [value] (shapefile options, default: **0x1007**)

- export points (**0x01**)
- export polylines (**0x02**)
- export polygons (**0x04**)
- write z-coordinate (0x10)
- layer name as file name (**0x1000**)
- use file name as folder name (0x2000)
- overwrite without warning (0x4000)

Entity Conversion

TypeConversion: [value] (entity conversion, default: **0x01**)

- block to point (**0x01**)
- text to point (0x02)
- closed spline to polygon (0x04)
- closed ellipse to polygon (0x08)
- Circle to polygon (0x10)
- closed polyline to polygon (0x20)
- explode hatches (0x40)

ConvPrecision: [value] (accuracy = value / 1000000, default: **100000**)

Parameter

"/exportflags <options> /typeconv <conversion> /convprec <accuracy>"

/exportflags <options> [value] (shapefile options)

/typeconv <conversion> [value] (entity conversion)

/convprec <accuracy> [value] (accuracy * 1000000)

SVG Export

Registry Entries

Path: \Filter\SVG

Output Size

SizeMode:	0	(Keep original size in pixel)
	1	(Scale to fix size)
	2	(Keep original size in millimeter)
MaxWidth:	[value]	(only if SizeMode = 1: Width in pixel, default: 300)
MaxHeight:	[value]	(only if SizeMode = 1: Height in pixel, default: 200)
Precision		
Precision:	-1	(Automatic)
	[value]	(Use decimal places, number of digits)
MinLineWidth:	[value]	(min. line width in 1/1000 units, default: 200)
DotSize:	[value]	(min. dot size for dash-dotted lines in 1/1000 units, default: 200)
SVGHeaderType:	0	(Use default SVGHeader)
	1	(read from SVGHeader)
SVGHeader:	[text]	(SVG-Header, default: " <code>xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink"</code> "\n")
DocHeaderType:	0	(Use default DocHeader)
	1	(read from DocHeader)
DocHeader:	[text]	(Doc-Header, default: " <code><!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 1.1//EN" "http://www.w3.org/Graphics/SVG/1.1/DTD/svg11.dtd"</code> "\n")
UseSVGInfo:	0	(Use default SVGInfo)
	1	(read from SVGInfo)
SVGInfo:	[text]	(SVG Info, default: " <code>width="%g%s" height="%g%s" viewBox="0 0 %g %g" onload="if(typeof (parent.fileLoaded) != 'undefined') parent.register2();" ">\n"</code>)
XLink:	[text]	(XLink entry, if attributes "XLink" are present, default: " <code><a xlink:type="simple" xlink:actuate="onRequest" xlink:href="#%s" xlink:show="replace" xmlns:xlink="http://www.w3.org/1999/xlink">\n"</code>)

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■ VPstudio mono	■ VPraster edit	■ VPmap
■ VPlite		

XLinkNoZeros:	0/1	(remove leading zeros ("0") in attributes "XLink" no/yes, default: 1)
NotInLink:	[text]	(Characters to be removed from attributes "XLink", default: "")
NotInId:	[text]	(Characters to be removed from Hotspot links (attribute "id"), default: "")
SkipLen:	[value]	(minimum size for ellipses in 1/1000 units, default: 0)
EllipseAsPolyline:	0/1	(convert ellipses to polylines no/yes, default: 0)
RasterAsReference:	0 1	(Embed Raster Images) (Save Raster Images as external Reference)
RefSubDir:	[text]	(Subdirectory for external Raster Images, default: "")
RefFormat:	[text]	(File format for external Raster Images default: "PNG ")
HotspotsLast:	0/1	(write all elements of layer HotspotLayer at the end of the file, default: 1)
HotspotLayer:	[text]	(Name of Hotspot layer, default: "CC_HOTSPOT")
TextToRect:	0 n -n	(Hotspots as Text) (Hotspots as transparent rectangles with a frame width of n pixel) (negative value: Hotspots as texts and transparent rectangles with a frame width of n pixel)
RectColor:	-1 [value]	(transparent rectangles in text color) (RGB color value of transparent rectangles)
TextOpacity:	[0-100]	(Opacity of transparent rectangles, default: 0)
TextInPt:	0/1	(text size in pt (1/72 inch) no/yes, default: 1)

Parameter

```
"/mode <size> /w <width> /h <height> /p <precision> /minwidth <linewidth>
/Svg<SVGHeader> /Doc <DocHeader> /Info <SVGInfo> /XLink <XLinkEntry> /NoZeros
<NoZeros> /NotInLink <character> /NotInId <character> /skiplen <MinSize> /EasP <ellipses>
/AsRef <raster> /RefDir <directory> /RefFormat <format> /Last <ToEnd> /Layer <name>
/Rects <HotspotFormat> /RectColor <Color> /Opacity <OpacityValue> /FontPt <TextSize>"
```

/mode <size>	0 1 2	(Keep original size in pixel) (Scale to fix size) (Keep original size in millimeter)
/w <width>	[value]	(only if SizeMode = 1: Width in pixel)
/h <height>	[value]	(only if SizeMode = 1: Height in pixel)
/p <precision>	-1 [value]	(Automatic) (Use decimal places, number of digits)
/minwidth <linewidth>	[value]	(min. line width in units!)
/Svg <SVGHeader>	[text]	(SVG-Header)
/Doc <DocHeader>	[text]	(Doc-Header)
/Info <SVGInfo>	[text]	(SVG Info)
/XLink <XLinkEntry>	[text]	(XLink entry, if attributes "XLink" are present)
/NoZeros <NoZeros>	0/1	(remove leading zeros ("0") in attributes "XLink" no/yes)
/NoZeros <NoZeros>	0/1	(remove leading zeros ("0") in attributes "XLink" no/yes)
/NotInLink <character>	[text]	(Characters to be removed from attributes "XLink")
/NotInId <character>	[text]	(Characters to be removed from Hotspot links (attribute "id"))
/skiplen <MinSize>	[value]	(minimum size for ellipses in units!)
/EasP <ellipses>	0/1	(convert ellipses to polylines no/yes)
/AsRef <raster>	0 1	(Embed Raster Images) (Save Raster Images as external Reference)
/RefFormat <format>	[text]	(Subdirectory for external Raster Images)
/RefFormat <format>	[text]	(File format for external Raster Images)
/Last <ToEnd>	0/1	(write all elements of layer HotspotLayer at the end of the file)
/Layer <name>	[text]	(Name of Hotspot layer)
/Rects <Hotspotformat>	0 n -n	(Hotspots as Text) (Hotspots as transparent rectangles with a frame width of n pixel) (negative value: Hotspots as texts and transparent rectangles with a frame width of n pixel)

/RectColor <color>	-1	(transparent rectangles in text color)
	[value]	(RGB color value of transparent rectangles)
/Opacity <OpacityValue>	[0-100]	(Opacity of transparent rectangles)
/FontPt <TextSize>	0/1	(text size in pt (1/72 inch) no/yes)

TIFF Export

Registry Entries

Path: \Filter\Tiff

Strip Control

StripMode:	0	(Auto)
	1	(Single Strip)
	2	(Multiple Stripes)

RowsPerStrip:	[value]	(Rows Per Strip, default: 512)
----------------------	---------	--

Color Options

ColorCompression:	0	(uncompressed)
	1	(LZW)
	2	(Packbits)

Monochrome Options

MonoCompression:	0	(uncompressed)
	1	(CCITT Group 4)

Parameter

"**/col** <color options> **/bw** <bw options> **/st** <strip control> <number of rows>"

/col <color options>	0	(uncompressed)
	l	(LZW)
	p	(Packbits)

/bw <bw options>	0	(uncompressed)
	4	(CCITT Group 4)

/st <strip control>	a	(automatic)
	s	(single strip)
	m	(multiple stripes)

<number of rows>	[value]	(rows per strip)
------------------	---------	------------------

XDW Export

Registry Entries

Path: \Filter\XDW

Create: [text] (create XDW using TIF/JPEG, default: **TIF**)

Append: [text] (append original data)
- none
- PDF
- DWG
- **RVD**

Parameter

"/C <filetype> /A <filetype>"

/C <filetype> [text] (create XDW)

/A <filetype> [text] (append original data)

DDE and OLE

VP software features a Windows compliant DDE and OLE interface that allows other applications to communicate with it. This may be useful in conjunction with, for example, a database application, which manages files that can be viewed and processed with VP software. Specifically, you can:

1. Create a VP software object via OLE automation and execute commands on it.
2. Establish a DDE link to VP software to execute commands via DDE.



Note: You can not link or embed a VP software object in an OLE container application (OLE compound file)!

To 1: OLE Automation capable programs (like Microsoft Excel) may create and operate on a '**VP.Document**' object (OLE short name). The available automation functions are (written in C):

```
long    GetProcessID ();
short   Execute (BSTR pszCommand);
long    GetDocumentCount ();
BSTR    GetDocumentName (long lDocumentNumber);
boolean CloseDocument (BSTR lpszDocument);
long    ShowWindow (BSTR lpszDocument, long iShow);
long    GetLastError (BSTR* pszErrorString, long lErrorLength);
```

There's a type library called **VP.TLB** installed in the VP software directory, which can be read by software development tools (like Microsoft Visual C++). In this case, the function prototypes listed above will be automatically generated in your target language.

To 2: The VP software is a DDE server that accepts the start of a conversation with the following data:

Application:	VPxx
Topic:	System

The DDE interface can handle **WM_DDE_EXECUTE** commands with the following syntax:

[command1][command2][command3]...

Do not omit the brackets ('[...]')! This way, you can execute an unlimited number of commands at once.

The commands that are available for DDE execution are all commands you can use from the command line of VP software.

Example, OLE via Visual Basic:

```
Sub InvertWithVPOLE(strFile)

    Dim strImp As String
    Dim strExp As String
    Dim VP As Object
    Set VP = CreateObject("VP.Document")

    strImp = "open " & Chr(34) & strFile & Chr(34)
    strExp = "export " & Chr(34) & strFile & Chr(34) & " /p -1"

    VP.Execute (strImp)
    VP.Execute ("invert")
    VP.Execute (strExp)
    VP.Execute ("closealways")
    VP.Execute ("exit")

    MsgBox "File has been inverted and exported with OLE!"

End Sub
```

The above Visual Basic program uses OLE to invert a drawing. Only the most important command you can use with VP software and OLE has been used in this example: Execute. With Execute you can start all commands that are available via the command line.

Note: closealways closes a document even if it is still modified. You should always use the exit command to close down the OLE application when you no longer need it.

OLE generally works on invisible documents. There are two possible scenarios: 1) The application is already started: OLE opens an new, but invisible document. 2) The application is not yet started: The application is started completely invisible. Thus OLE is restricted to batch processing. For interactive task you can use DDE or scripting.

Example, DDE via Visual Basic:

```
Private Sub InvertWithVPDDE(strFile)
    Dim intChan
    Dim strImp As String
    Dim strExp As String

    'Use System Topic to connect to VP
    'VP must be running in order to connect

    intChan = DDEInitiate("VPxx", "System")

    strImp = "[open " & Chr(34) & strFile & Chr(34) & "]"
    strExp = "[export " & Chr(34) & strFile & Chr(34) & " /p -1]"

    DDEExecute intChan, strImp
    DDEExecute intChan, "[invert]"
    DDEExecute intChan, strExp
End Sub
```


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■ VPlite		

```
DDEExecute intChan, "[closealways]"

MsgBox "File has been inverted and exported with DDE!"

'Terminate DDE conversation
DDETerminate intChan

End Sub
```

The above Visual Basic program uses DDE to invert a drawing. Note the square brackets, that must be used to encapsulate all commands. All commands you can start from the command line can be used.

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