Vision 10 Software

User Guide

Dongle Number

If not present, please note your dongle number and any other particulars of your product.

Vision Engraving & Routing Systems

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Limited Warranty

Vision Engraving & Routing Systems warrants that the disk medium upon which the product is recorded, and any hardware accompanying said disk(s), shall be free from defects in materials and workmanship -- under normal use and service for a period of ninety (90) days from the date of delivery, as evidenced by a copy of the receipt.

Vision's entire liability and exclusive remedy as to the disk(s) or hardware shall be at Vision's option -- either (a) return of the purchase price, or (b) replacement of the disk(s) or hardware that do not meet Vision's Limited Warranty. These must be returned to Vision Software postage prepaid with a copy of the receipt.

If failure of the disk(s) or hardware has resulted from accident, abuse or misapplication, Vision shall have no responsibility to replace the disk(s) or hardware, the replacement will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer. Other then the above limited warranty, Vision makes no other warranties whatsoever, either legal or conventional, express or implied, with respect to the licensed software and hardware. You are advised to test the licensed software thoroughly before relying on it. You assume the entire risk of using the licensed software. Because of the diversity of conditions and hardware under which the licensed software may be used, no warranty of merchantability or fitness for a particular purpose is given. Some regions do not allow the exclusion of implied warranties, so the above exclusion may not apply.

Copyright Notice

Contact Information

If you have not already done so, then we ask that you perform registration of your package, such that Vision Tech Support has current information that allows them to resolve your issues promptly. Registration includes:

- Software updates
- Special pricing on upgrades
- Special pricing on other Vision Software products

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Quick Start

Vision 10 Software is Computer Aided Design (CAD) software for laser and rotary engraving systems. Vision provides leading edge technologies as an all-in-one package that designers can adapt to run their production shops efficiently. Vision includes tools that support a wide variety of applications, and development is ongoing to provide you with support for the latest technologies.

Vision provides simple, versatile tools that include designing with text, line art, and images (i.e., bitmaps). Vision also provides significant support for other design applications, so that unfinished or archived designs can be brought into Vision for pre-production work.

Note: The available Vision 10 Software features will vary according to the type of Vision package that has been purchased.

Note: For additional feature descriptions that are not contained within this User Guide, please consult the Help File that is provided with the Vision product.

Differences Between Rotary and Laser Engravers

Vision 10 Software supports a broad range of manufacturers, and we seek to support new machines when they become available. For rotary engravers, output is sent via the **Engrave** menu >> Output command.

This can also be true for laser engravers, except where the manufacturer has provided a printer driver for the engraver. In this case, output is sent via the **File** menu >> **Print** command.

The following sections highlight differences in how Vision can send output to rotary and laser engravers.

Overview of Rotary Engraving

(Engrave menu >> Output)
Rotary engravers use a device driver (i.e., cutter driver).

- In the case of engravers that are connected via the USB port, the device driver might be 1) provided on a manufacturer CD, 2) provided from the manufacturer web site, or 3) automatically installed when the engraver is connected to a Windows computer.
- For engravers that are connected via other types of port, such as serial port or Ethernet (TCP/IP), this will not involve installing a device driver from the manufacturer.
- During installation of Vision 10 Software, you will be prompted to install a device driver for sending output from Vision to the engraver.
- This will be in addition to any USB driver that is provided by the manufacturer.
- After Vision 10 Software installation, additional device drivers can installed via **File** menu >> **Install Cutting Devices**.

How does a design work?

- Once all the device drivers have been installed, configuration and output is performed via the **Engrave** menu.
- In particular, the Tool Options are where you set the feeds and speeds, which can be set as a general default, or for each type of material that you intend to work with.
- For a given design, tool path operations are applied to shapes and text, and these tool paths define the speed and type of operations that will be performed.

- For some engravers, it can be sufficient to set cutting depth/pressure at the machine control panel, such that applying explicit tool paths to shapes is not necessary.

Overview of Laser Engraving (printer driver)

(File menu >> Print)
The following applies when the manufacturer has provided a printer driver.

- The printer driver must be installed to the **Windows Control Panel,** per the Operator's Manual for the engraver.
- The printer driver might be 1) provided on a manufacturer CD, or 2) provided from the manufacturer web site.
- Within Vision 10 Software, configuration and output to the engraver are done via **File** menu >> **Print.**
- From the **Print** dialog, click the **Setup** button to access the **Properties** dialog for the printer driver, where the Power and Speed are set for each palette color.

How does a design work?

- On the workspace, these colors are applied from the Shop Palette, either as fill or stroke colors.
- For example, a shape's fill color would indicate a raster operation, whereas a stroke color would indicate a cutting operation.
- Note that the Shop Palette can be set to use customized engraving palettes set with speed and power settings for specific engraver models. These preset palettes were installed with your Vision 10 Software product, such as the following directory location:
C:\Vision Software\Vision 10 Software\Palettes\Engrave

Overview of Laser Engraving (device driver)

(Engrave menu >> Output)
The following applies when then manufacturer has NOT explicitly provided a printer driver (i.e., a device driver is being used).

- In the case of USB-connected engravers, the device driver might be 1) provided on a manufacturer CD, 2) provided from the manufacturer web site, or 3) automatically installed when the engraver is connected to a Windows computer.
- During installation of Vision 10 Software, you will be prompted to install a device driver for sending output from Vision 10 Software to the engraver. It is assumed that the USB driver has also been installed.
- After Vision 10 Software installation, additional device drivers can installed via menu >> **Install Cutting Devices.**

How does a design work?

- Once all the device drivers have been installed, configuration and output is performed via the **Engrave** menu.
- Engraving operations are defined by the fill color of shapes and text.
- Strokes, hairlines and thick strokes are **NOT** used to indicate a cutting operation.
- Instead, the **Job Colors** dialog lists the fill colors that have been applied, including the main engraving parameters associated with each color.
- Double-clicking a color in the **Job Colors** dialog will display all of its engraving parameters.
- Once parameters have been set in the **Job Colors** dialog, click the Save button.

Note: Changes to color parameters will be **LOST** unless the **Save** button is clicked.

Installation Checklist

If you have not already done so, then please review "Differences Between Rotary and Laser Engravers" on page 14.

Initial Steps

Use the following as a quick checklist when setting up Vision 10 Software. These steps are elaborated upon in the following pages of this guide.

1. Install the device driver, or printer driver, as provided by the manufacturer.
2. Prior to beginning the Vision 10 Software installation, connect the Vision security dongle.
3. Begin the Vision 10 Software installation (e.g., from DVD), and proceed through the wizard installation steps.
4. During installation, there will be a driver installation step, which is in addition to any manufacturer drivers that were installed in step (1).
5. If not already done, then connect the machine that will be receiving the cutting data.

   For proper installation of cutting knives, drill bits and loaded material, please consult the Operator Manual for the machine.

   When using the machine for the first time, it is recommended that a sample piece of material be loaded.
6. Launch Vision.
7. When prompted to set the plate size, the **Width** and **Height** are typically set according to the material that has been loaded into the machine.

Per the following sections, continue this checklist according to your machine and driver type:
For Rotary Engravers
For Laser Engravers (using a printer driver)
For Laser Engravers (using a device driver)

For Rotary Engravers

Rotary engravers use the **Engrave** menu commands for setup and output.

Continuing from step (7):

8. Within Vision 10 Software, configure the driver settings for the machine (**Output** dialog and **Engraving Defaults** dialog).

   In particular, indicate the output port to which the machine is connected, and confirm that the **Machine Limits** are correct.
9. Create objects on workspace and apply tool paths to these shapes.

   If you intend to cut all jobs per a pressure/depth setting that you have made at the machine control panel, then you will not need to apply tool paths to your workspace objects.

   To minimize wasted material when using the machine for the first time, it is recommended that small shapes be used.
10. Go **Engrave** menu >> **Output** to enter the Engrave Preview state.
11. In the preview, confirm the shape positions. In particular, there is a crosshairs marker that indicates the machine origin position.
12. To output the job, click the Engrave button (far-right of the **Output Manager** toolbar).

For Laser Engravers (printer driver)

Prior to completing the following steps, it is expected that you have installed the printer driver as provided by the manufacturer.

Continuing from step (7):

8. Within Vision 10 Software, set the default Shop Palette colors according to the colors that are defined within the printer driver.
9. Create shapes on workspace and apply fill and stroke colors. Fill colors represent raster fills, and stroke colors represent cut lines.
10. From the **Print** dialog, configure your printer by clicking **Setup** on the **Printer** tab.
11. On the **Print** dialog, click **OK** to send the job to the laser engraver.

For Laser Engravers (device driver)

Prior to completing the following steps, it is expected that you have installed the device driver as provided by the manufacturer.

Continuing from step (7):

8. Within Vision 10 Software, configure the driver settings for the machine (**Output** dialog and **Engraving Defaults** dialog).

   In particular, indicate the output port to which the machine is connected, and confirm that the **Machine Limits** are correct.
9. Create shapes on the workspace and apply fill colors from the **Shop Palette**.
10. The **Job Colors** dialog will indicate the **Mode** that will be used when that shape color is output. **Speed** and **Power** settings can also be set.
11. Double-click a color within the **Job Colors** dialog. The **Edit Color** dialog will display additional settings that vary according to the **Mode**.
12. Choose **Engrave** menu >> **Output** to enter the Engrave Preview state.
13. In the preview, confirm the shape positions. In particular, there is a crosshairs marker that indicates the machine origin position.
14. To output the job, click the Engrave button (far-right of the **Output Manager** toolbar).

Installing Vision 10 Software

Vision 10 Software is provided with a small blue/white USB security dongle to prevent unauthorized use or pirating of the software. This dongle is a flash drive that plugs into a standard USB port of the computer, and it is transparent to other applications. Only Vision 10 Software is aware of the device.

Note: Before installing, please verify that you have administrative permissions. Otherwise, Windows will prevent the installation of the dongle support software.

Connect your security dongle **BEFORE** installing your Vision 10 software!

Known Issues with USB Ports

If Vision 10 Software is not detecting the dongle, then move the dongle to an alternative USB port. Possible issues are:

- Front-mounted USB ports of your desktop computer might not be wired correctly. If the dongle is not detected, then use a back-mounted port.
- Where a USB hub is used, always use a powered hub. Non-powered hubs provide limited power per port, which affects many USB devices.
- Some USB ports provide limited power. When in doubt, consult the specifications provided by the computer manufacturer.
- Virtualization software can run Vision 10 Software on a Mac computer, provided that the dongle has been "associated" with Windows. Consult your virtualization documentation for more information.

Policy On Lost Or Stolen Security Devices

- The USB security dongle is your proof of purchase. If the dongle is lost or stolen, then that is equivalent to losing the entire software package, and a new package of Vision 10 Software must be purchased.
- In the event of a damaged security device that must be replaced, there is a nominal fee for EXCHANGING a new device for the older device, where the older device must be reclaimed by Vision Software.
- This fee is waived where product is still under warranty.
- Regardless, it is recommended that you ensure that your security device is covered under your business insurance policy.

Temporary License Files when Replacing a USB Dongle

- Your USB dongle is a flash drive, such that your license files can be stored upon the dongle.
- The license files are used to confirm the features within your Vision Software products.
- If a replacement dongle is being shipped to you, then the expectation is that you will likewise return your previous dongle to us.
- Replacement dongles are typically issued with "temporary" license files that will enable you to continue using your Vision Software products.
- Temporary license files will cease working after a set criteria, and it is required that you return your previous dongle to Vision Software before the temporary license files expire.
- Once we have received your previous dongle, you will be provided with new "permanent" license files that will replace the temporary license files.

Backup Your License Files

- In the event of lost license files, there is a nominal administrative fee for issuing replacement license files.
- This fee is waived if the Free Support period is still active. Otherwise, replacement license file issues are treated as

Tech Support requests.

- When Vision Software sends you new license files, it is important that you create backups of the license files, so they can be easily located when re-installing your Vision Software products on new equipment.
- In the case of the USB flash drive dongle, your license files can be stored on the dongle itself (instructions are provided alongside your new license files). When re-installing your Vision Software products, the license files upon the dongle will be automatically used.

Program Installation

1. Connect the USB security dongle **NOW**.
2. Insert the Vision 10 Software install DVD into your CD-ROM drive.
3. Should the install wizard not automatically start, it can be manually started as follows:
   a) Use the **[Windows + r]** keyboard shortcut to open the **Run** dialog.
   b) Click **Browse** and select the setup.exe file on the DVD.
   c) Click **Open** to choose the setup.exe file, and click **OK**.
4. During the installation, you will be asked to install various components:

- If you are asked to insert a CD that contains license files, then insert the CD, verify that the path is correct, and click **OK.**
- When prompted to install cutter drivers, it is recommended that you install drivers for your cutters at this time.
- For each engraver that you need, indicate their manufacturers, and click **Next** to choose specific engraver models from each of those manufacturers.
- When asked to install fonts, it is recommended that you install fonts at this time.
- Font installation will automatically detect Windows fonts that have been installed to the Windows Control Panel (i.e., TrueType, OpenType, and PostScript).
- For Vision Software VEF fonts, these are provided as part of your product install, and the VEF files will be copied to:
  C:\ProgramData\Vision Software

5. After the installation is complete, you may be prompted to restart Windows.
6. If you were asked to insert a license disk or CD during the install, then eject the disk and store it in your Vision 10 Software package.
7. Launch Vision 10 Software, and proceed to *Customizing the Vision 10 Software Workspace*.

Note: In addition to the Vision 10 Software product shortcut, there is also a limited Trial shortcut for evaluating additional product features.

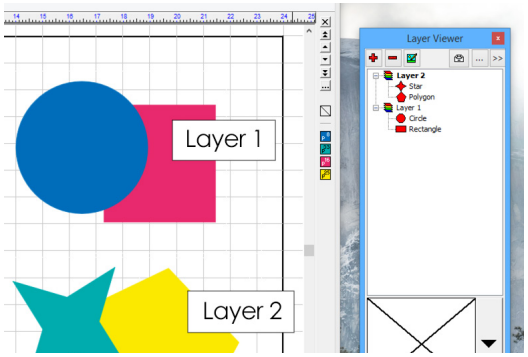

Fig. 1 - Pairs of objects, each pair on a separate layer.

difficult to select amidst your overall design.

InstantReplay

Options menu >> **Use InstantReplay**

View menu >> **Show InstantReplay**

InstantReplay tracks the history of operations and special effects that have been applied to objects. When InstantReplay is ON, changes to an object will automatically update any operations or special effects that have been applied to that object.

For example, when creating badges that have variable text, InstantReplay will re-apply operations and special effects for the text of each badge.

Multiple Instance

Options menu >> **Multiple Instance**

This option allows you to have more than one workspace window open at the same time. To help manage these windows, the following two commands will be available under the **File** menu:

Close – Close the current workspace window (prompt to save)

Close All – Close all workspace windows

Having extra workspace windows provides a means to have two designs open, essentially side-by-side, such that you can either copy, or drag-and-drop, objects between the windows.

Workspace Rulers

Options menu >> Setup >> **General Preferences**

The workspace rulers can be set for either millimeters or inches.

- Left-click the ruler and choose the units (Fig. 2).
- From the **General Preferences** dialog, both the Units and **Speed units** (i.e., tool velocity) can be specified.

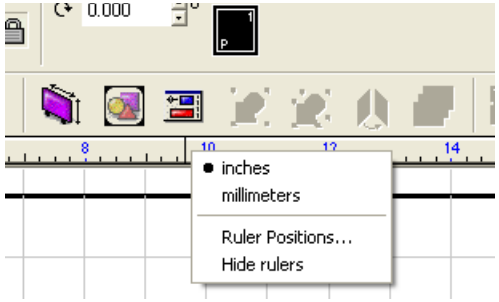

Fig. 2 - Left-click to change the units.

Font Point Size

When composing text, the Font Height will be expressed in the same units as the workspace ruler. However, the height can also be expressed in point size.

In Text Compose mode, click the Font Height Options button. Point size can be set separately for Windows Fonts (i.e., TTF, OTF, PostScript), versus all other supported fonts (e.g., VEF).

When the current font height is being expressed in point size, the **Font Height Options** button (Fig. 3) will indicate this in the form of a small dot (that is otherwise not visible on the button).

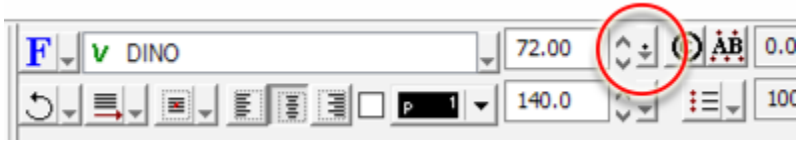

Fig. 3 - The **Text Height Options** button. The dot indicates that the current font height is expressed in points.

Plate Size

View menu >> **Show Plate**

Layout menu >> **Plate Size**

The plate size is a rectangular guide that indicates the available cutting area. You typically set its dimensions according to the loaded material.

On the **Plate Size** dialog (Fig. 4), set the following:

- Set **Origin Selection** according to the relative starting position of the engraving tool (i.e., per your Operator's Manual).
- Set **Orientation** to either Portrait or Landscape.
- Set **Current Selection** to Custom.
- Set the **Width** and **Height** (the units here will correspond to the workspace ruler).

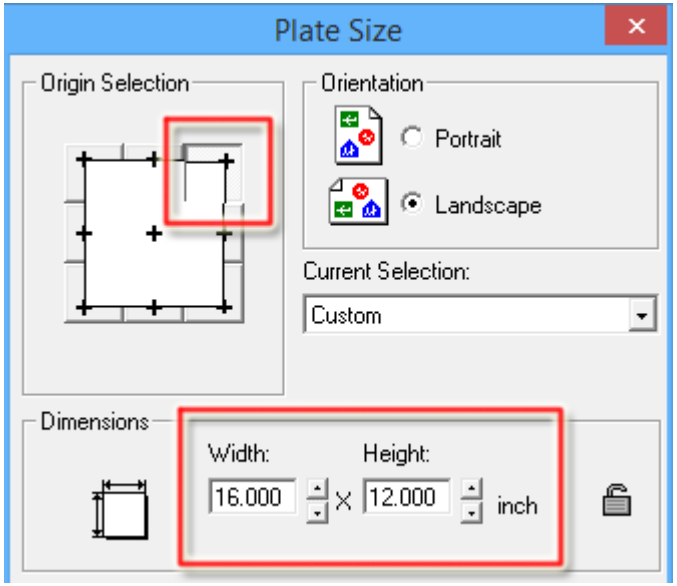

Fig. 4 - Use the **Plate Size** dialog to configure the on-screen preview of the cutting area.

Sheet Page Palette

For some features, such as Nesting or Badges, the placement of workspace objects will be constrained by the plate size. When the number of such objects cannot fit, additional pages will be created.

Additional pages can be accessed via the **Sheet Page** palette (Fig. 5).

Fig. 5 - When your design requires additional pages for layout of the objects, these pages can be accessed using the Sheet Page palette.

Preparing Your First Job

As previously mentioned in the introductory sections, sending output to your engraver can vary according to whether it is a rotary or laser engraver, and laser engravers can further vary according to whether they require a printer driver, versus that of a device driver.

Of the following three sections, each is tailored to one of these output scenarios. Choose the section that applies to your type of engraver, and complete the job preparation as a means to confirm that Vision 10 Software is communicating with your engraver.

Preparing a Rotary Engraving Job

The following procedure describes how to configure Vision 10 Software for a rotary engraving job. We will begin by adjusting the machine settings within Vision 10 Software, creating a design that has a tool path for engraving, previewing how that design will appear before output, and then sending the job to be cut.

Launch Vision 10 Software

Our initial task is to configure the **Output** dialog, which includes configuration of the **Engraving Defaults** dialog.

1. From the Windows **Start** menu, launch Vision 10 Software.
2. By default, the **Plate Size** dialog will query for the size of your engraving bed.

   Typically, the **Width** and **Height** are set according to the Machine Limits of your engraver.

   These settings can be modified later using **Layout** menu >> **Plate Size.**

Engraving Defaults

3. From the **Engrave** menu, choose **Engraving Defaults.** The **Output** dialog will open (Fig. 6).
   a) Verify that the **Selected driver** is set to your engraver.
   b) Set the **Tool** drop-list to indicate the loaded tool.

      The options will vary according to your engraver choice.

      Where shapes will be cut with more than one pass (i.e., cutting to progressive depths), the **Too**l setting should

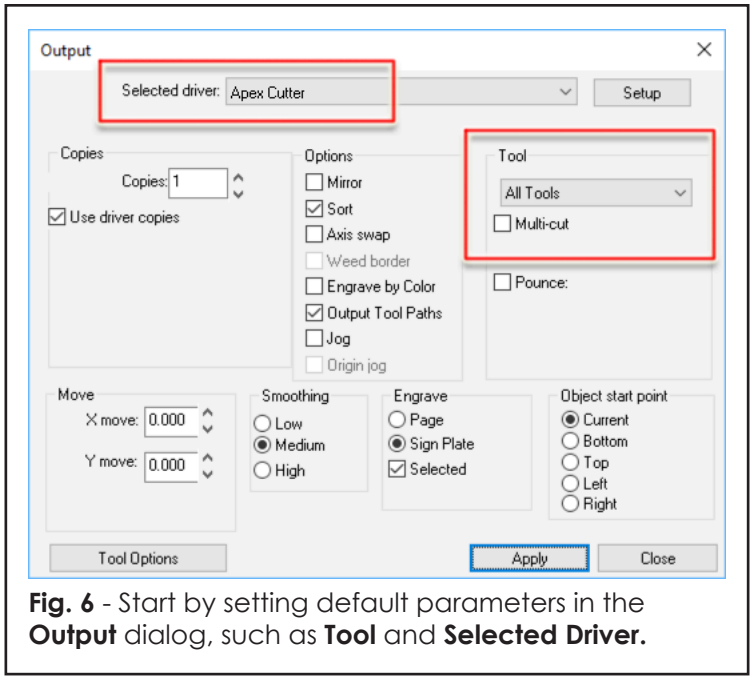

Fig. 6 - Start by setting default parameters in the **Output** dialog, such as **Tool** and **Selected Driver.**

be "**Multiple Pass**" or "**Router**" (depending on the machine model).

c) If your workflow involves two-or-more tools that must be manually swapped out between passes, then tick the **Engrave by Color** option (Fig. 7).

It is expected that you have differentiated the tool paths according to their assigned colors.

Before each engraving pass, the **Filter by Color** dialog will prompt you to choose which tool path operation to perform.

d) When multiple objects are output in the same engraving pass, the default is to engrave them in the order of creation (i.e., database order).

Ticking the **Sort** option will enable prompts that allow you to change the sort order (prior to job output).

Your chosen sort method will depend upon what you believe is best for your engraver, and the composition of your design.

Possible sort methods could include giving priority to 1) the object that is closest to the current tool position, 2) objects that are arranged horizontally/vertically, 3) the object sizes, etc.

e) For the Engrave setting (Fig. 8), choose between **Page** and **Sign Plate,** which are applied as follows:

Page: Cutting will commence at the machine's origin point. This is useful when positioning a shape that needs to be cut at a specific location.

Sign Plate: Shapes will be cut with respect to their relative positions within the sign plate.

Ticking the **Selected** checkbox will require that you explicitly select objects prior to sending output.

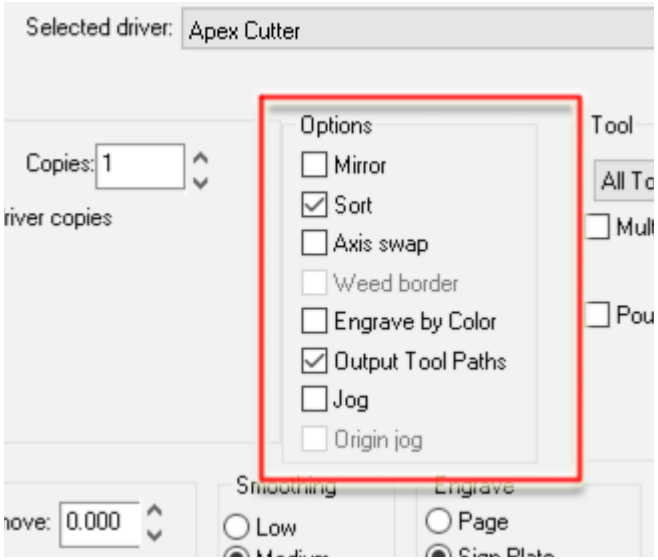

Fig. 7 - Engraving by color allows you to engrave specific portions of your design in isolation (e.g., when different tools are required for each operation).
The available sorting controls will vary according to whether tool paths are enabled.

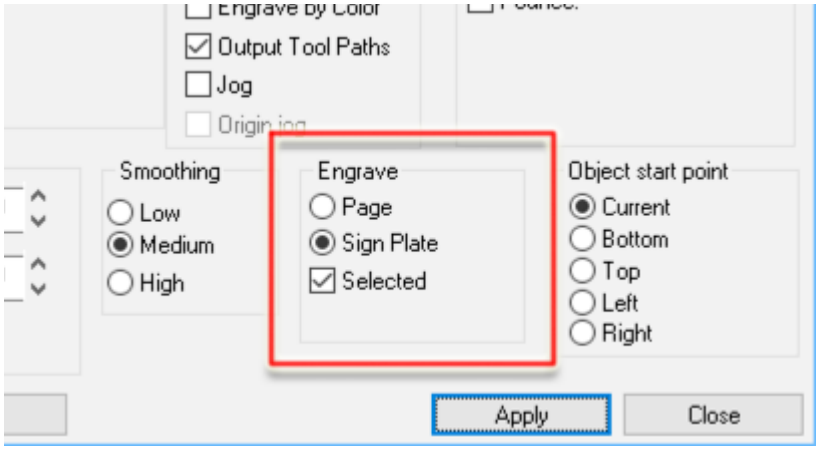

Fig. 8 - Typically, you will want to restrict valid output objects to those that are on the sign plate, and which are selected.

4. The **Output Tool Paths** checkbox will probably be enabled by default. If so, then clear the checkbox.

   At this point, if you have decided that objects should be cut according to a depth/pressure setting made at the engraver control panel, then you do not need to output tool paths, and you can proceed to step (5).

   a) With the **Output Tool Paths** checkbox clear, click the option to tick it. The **Tool Path Options** dialog will open (Fig. 9).

   b) Click the Output Tool Paths option. Enabling this option indicates that the tool paths will be previewed in the **Engrave Preview** state.

   c) Clear the "**Also Cut Contour Paths**" option. If this option were checked, then all objects (aside from tool paths) will be viewed as contour cutting paths in the Engrave Preview state. By disabling this option, only tool paths will be previewed in the **Engrave Preview** state.

   d) Click **OK** to close the **Tool Path** Options dialog. The view will return to the **Output** dialog.

5. Click **Save Default** to confirm your changes.

Tool Options

6. Click the **Tool Options** button.
7. The **Tool Options** dialog (Fig. 10) is used to set the feeds and speeds that will be used with your machine.

   Where your engraver supports more-than-one tool type, these settings can be customized for each tool type.

   These settings can also be customized for different material types.

8. Click **OK** to close the **Tool Options** dialog.

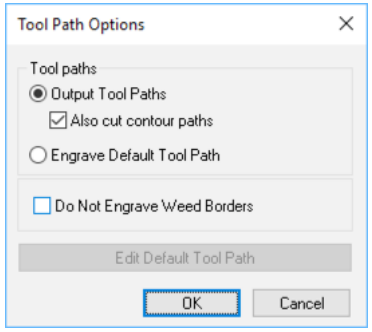

Fig. 9 - The **Tool Path** Options dialog is used to enable the creation of tool paths, or to automatically apply a default tool path to objects.

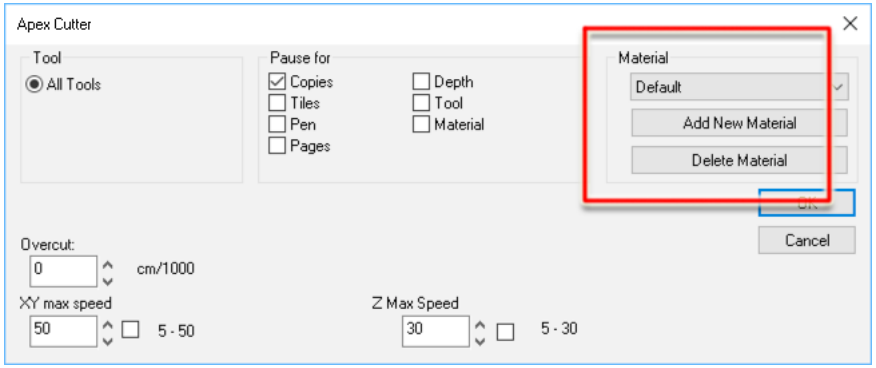

Fig. 10 - The tool options vary according the engraver model. Set these options according to what is recommended for the given tool, and the loaded material.
Note that your Operator Manual will provide specific information about how these options should be set for your engraver model.

Machine Limits

9. From the **Output** dialog, click the Setup button.
10. The **Engraver Setup** dialog will open.
11. On the **Engraver** tab, confirm that the **Machine Limits** do not exceed the actual limits of the engraver (Fig. 11).

Origin and End Point

12. Set the **Origin** and **End Point** according to where you want the machine to start and finish each job. You should set these according to the type of work that you are performing (Fig. 12-14).

    We have provided you with default settings that will generally work for the majority of hardware setups, though you should verify these settings in the Operator Manual provided with your engraver.

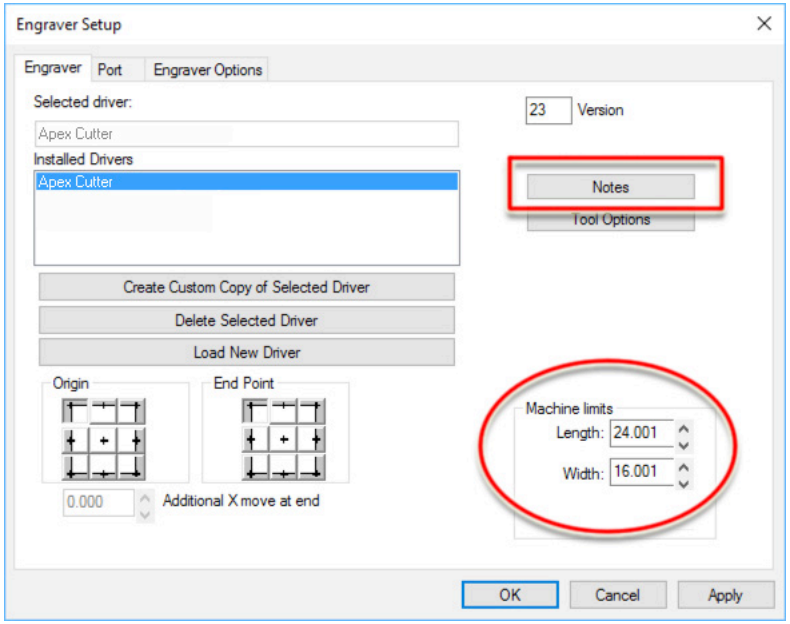

Fig. 11 - Confirm that the **Machine Limits** are correct for your engraver. Also, click the **Notes** button to review port configuration comments that are specific to your engraver.

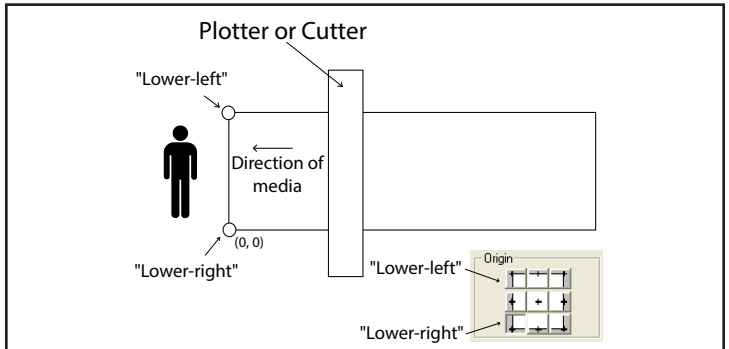

Fig. 12 - **Plotter or Cutter:** This arrangement is typical when a roll of media is fed through the machine.

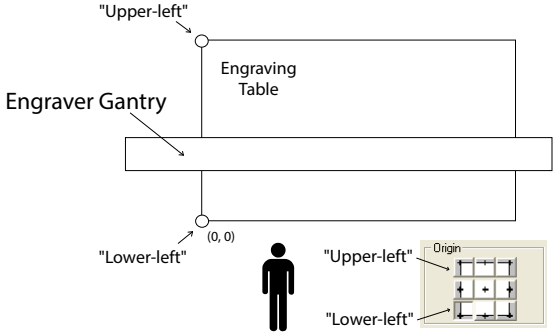

Fig. 13 - **Engraver:** This arrangement is typical when the piece of material affixed to the table, and a gantry passes over the material with a cutting tool.

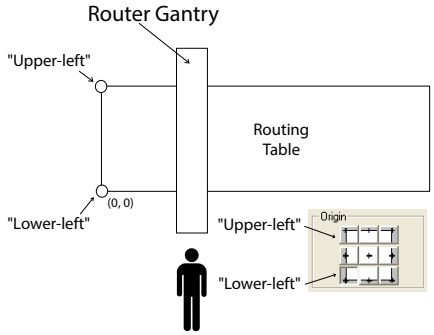

Fig. 14 - **Router:** This arrangement is typical when the piece of material is affixed to the table, and a gantry passes over the material with a machining tool.

Port Configuration

13. Click the **Notes** button, and review the configuration comments. These comments will provide you with specific advice as to what port configuration settings should be applied.
14. Click the **Port** tab (Fig. 15).
15. For the **Method,** you have two options:

    Direct to port : Output jobs directly from Vision 10 Software to the Port location that you have set.

    For this method, proceed to "Direct to Port Setup" on page 40.

    Use Production Spooler : Output jobs from Vision 10 Software to the Production Spooler queue, which can collect multiple jobs. For this option, the Port location must be set within the Production Spooler.

    For this method, proceed to "Production Spooler Setup" on page 38.

Production Spooler Setup

The Production Spooler is a separate application that was installed alongside your Vision 10 Software product.

16. From the Windows **Start** menu, launch Production Spooler.

    The Production Spooler must be active, so that Vision 10 Software can detect it.
17. In Vision 10 Software, the **Engraver Setup** dialog has a **Port** tab.
18. On the **Port** tab, click the **Use Production Spooler** option.

    This will hide the **Port location** controls, since the port be configured within the Production Spooler.
19. Click the **Add** button (Fig. 15), and Vision 10 Software will locate your Production Spooler application.

    If you have two-or-more networked computers that each have a Production Spooler, then each spooler is differentiated according to the computer name.
20. Choose the Production Spooler that you want to use, and click **OK,** and the **Use Production Spooler** drop-list will be updated.
21. From the drop-list, choose the queue that will receive jobs.
22. In Production Spooler, the port can now be configured:

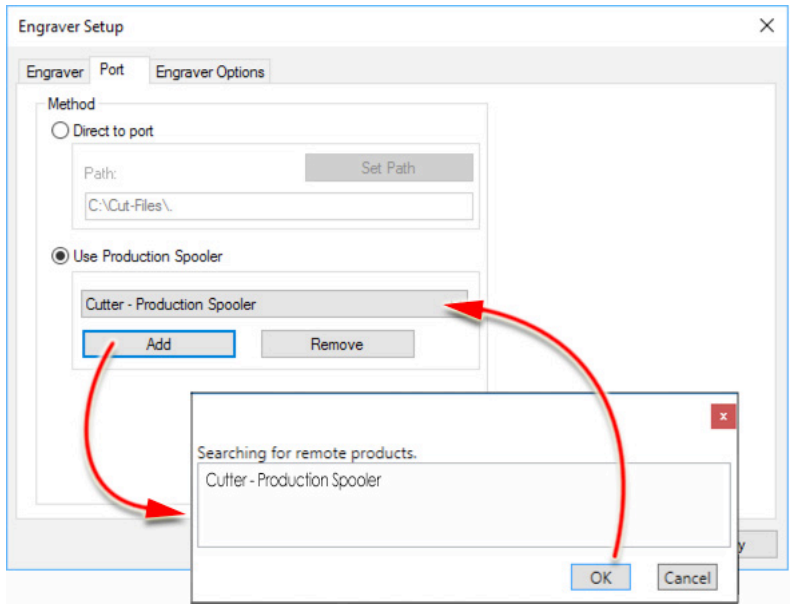

Fig. 15 - There can potentially be other Production Spooler queues on your network, Click **Add** to initiate a search, and choose the queue that you want.

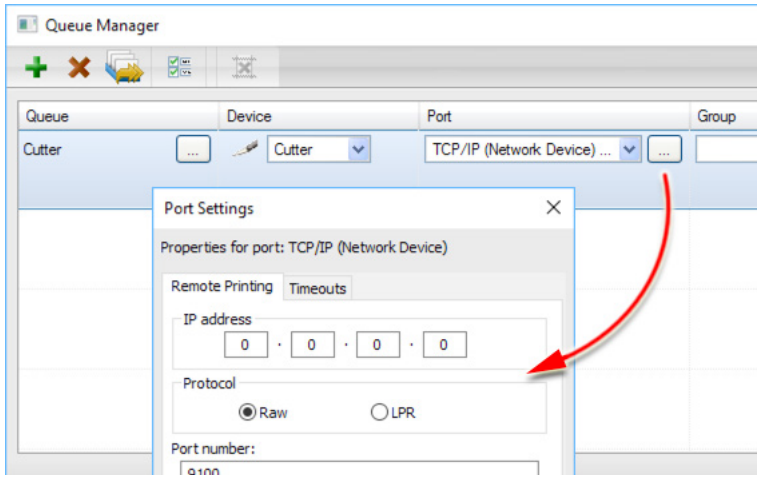

Fig. 16 - The **Port Settings** controls will vary according to the type of port that you have set for your engraver.

a) Choose **Queue** menu >> **Manage Queues** to open the **Queue Manager** dialog (Fig. 16).

b) Set the **Port** drop-list according to how you intend to output jobs to the engraver.

For guidelines about port selection, review "Choosing the Port" on page 42.

c) In the **Port** column, click [...] to adjust the **Port Settings.**

23. Skip the following **Direct to Port Setup** section, and proceed to **Engraver Options**

Direct to Port Setup

24. Set the **Method** = Direct to port (Fig. 17).
25. Set the **Port Location** for the machine.

    For guidelines about port selection, see "Choosing the Port" on page 42.

Engraver Options

26. Click the **Engraver Options** tab (Fig. 18).
27. These controls are specialized in the sense that they are used to compensate for unexpected drift in tool motions, which can occur when the engraver is in need of maintenance.

    Of course, it is preferred that engraver maintenance be performed in order to correct unexpected drift. However, these controls are provided for emergency situations, wherein the customer absolutely needs their job completed right away.
28. At this time, we do not need to adjust the **Engraver Options** controls, so click **OK** to close the **Plotter Setup** dialog.
29. Click **OK** to close the **Output** dialog.
30. At this point, we are ready to construct objects on the workspace, and to output those objects to your engraver. Please proceed to "Creating a Tool Path" on page 44.

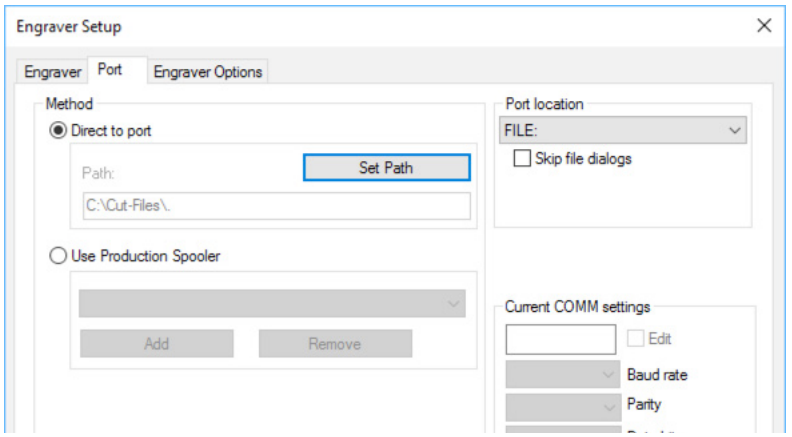

Fig. 17 - When setting the **Port Location**, consider the comments that are provided with the driver.
Engraver tab >> **Notes** button

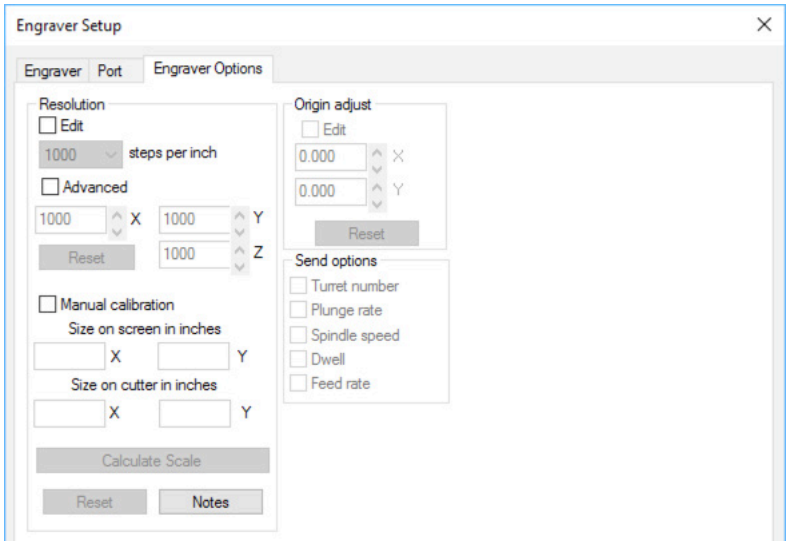

Fig. 18 - The **Engraver Options** provide a workaround for an engraver needs maintenance, but you have a job that needs to be completed right away.

Choosing the Port

Whether you are setting the port location within Vision 10 Software (or within the Production Spooler), your choice will depend upon the type of cable that connects your computer with the engraver.

For specific advice concerning your choice of port setting, and its configuration, please click the **Engraver** tab >> **Notes** button (Fig. 19).

If there are unexplained (or intermittent) communication problems when sending jobs to your engraver, then it would be prudent to perform a test with an alternative (known working) cable, in case your original cable is faulty.

Similarly, an overly long cable can cause signal attenuation, such that the job data is not being fully received by the engraver. In such cases, it is good practice to abide by the manufacturer's recommended cable length for the given engraver.

File - In the vast majority of cases with CNC routers, the port will be "FILE:", and the router will have a system for downloading the output file that is generated by Vision 10 Software.

For more information, please refer to the Operator Manual that was provided with the router.

USB - Depending upon what Windows has detected, there can be multiple USB ports available, and their names can vary.

If output does not appear to be working for a given USB port, then the wrong USB port might have been selected. Try choosing another USB port.

TCP/IP - For an engraver on your network, you must specify the **IP Address** and **Port number** used with that engraver.

Serial - Also known as a COMM port. This is a good choice because it supports bi-directional communications, which is needed for certain functionality, such as polling the device, and plotter jog.

For your COMM port settings, you will need to set the baud rate, parity, data bits, stop bits, and flow control settings for the engraver.

LPT - This is essentially an older style of printer port. Though it would generally work with a given plotter or cutter, a serial port would be the better alternative.

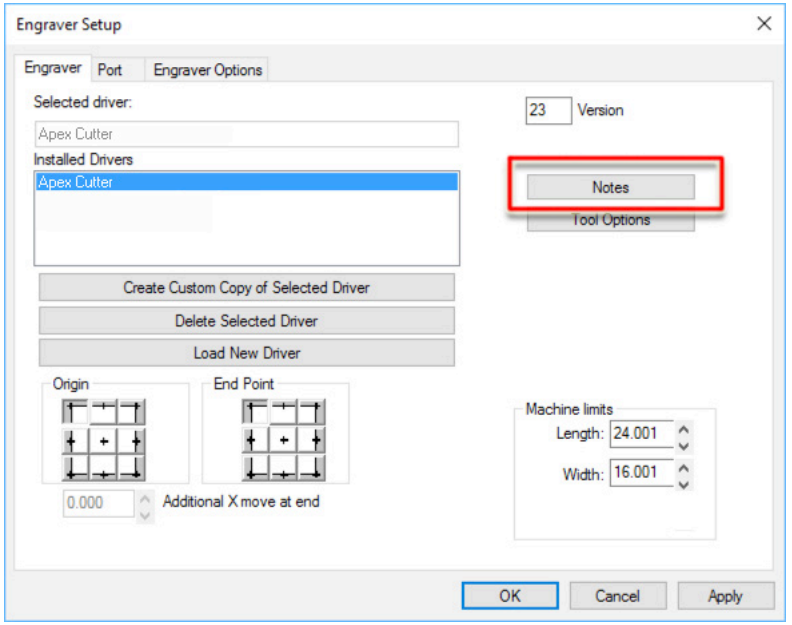

Fig. 19 - For the selected engraver, click the **Notes** button to review port configuration comments that are specific to your engraver.

Creating a Tool Path

See also: "Rotary Engraving" on page 197

At this point, Vision 10 Software has been configured to send output to your machine. Now we want to create a design and assign a tool path that can be output for cutting.

Previously on the **Output** dialog, if you had chosen to set depth/pressure settings on the engraver control panel (rather than use tool paths), then create a star shape (Fig. 20) and proceed to "Previewing and Cutting Your Design" on page 46.

31. On the Vision 10 Software workspace, use the **Shape Tools** >> **Star** tool to create a rectangle shape (Fig. 20).
32. With the rectangle shape selected, left-click the Online button from the **Tool Path Tools** flyout.

    Right-click will automatically apply the previously set tool path information (if any).
33. The **Online** dialog will open (Fig. 21)
34. Set the tooling information that will be stored within the tool path object (i.e., the loaded tool, the cutting depth, and the on-screen color of the tool path).
35. Click **OK** to create the tool path object.
36. The resulting tool path will appear like a stroke on the rectangle, and the color will be the same as set within the Online dialog.

    If the tool path is not visible, then check the **View** menu >> **Show Tool Paths** option.

    If you want the tool path to simulate the width of the cutting tool, then check **View** menu >> **Show Tool Diameter** option.

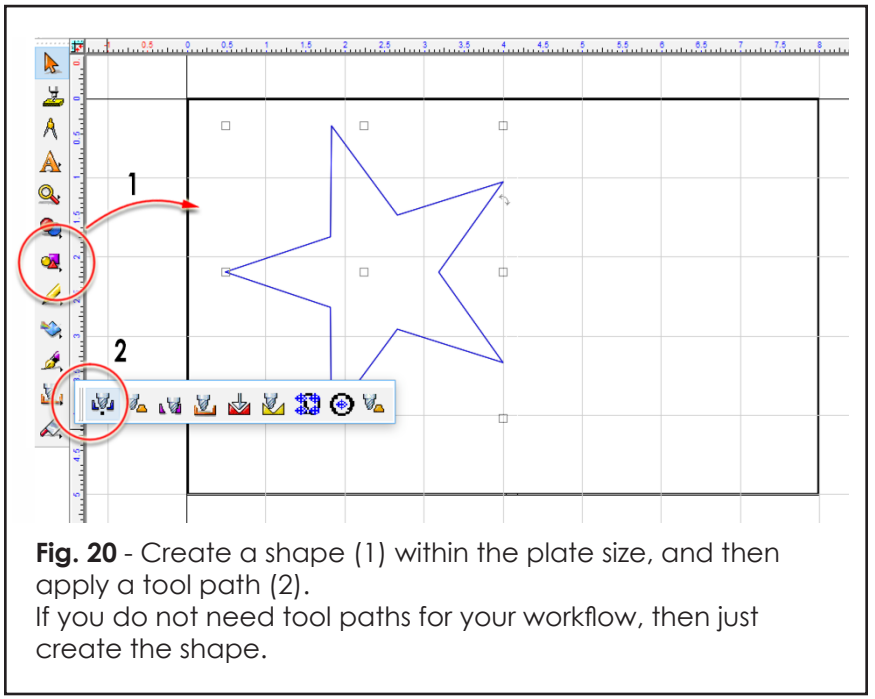

Fig. 20 - Create a shape (1) within the plate size, and then apply a tool path (2).
If you do not need tool paths for your workflow, then just create the shape.

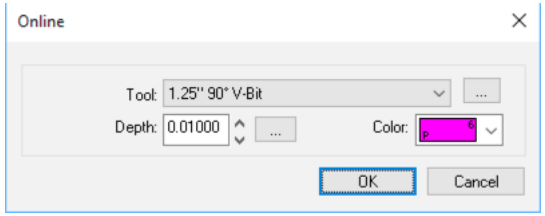

Fig. 21 - Set the tool, cutting depth, and on-screen color of the toolpath that will be created.

Previewing and Cutting Your Design

At this point, you have configured Vision 10 Software for output to your engraver, created a basic object on the workspace, and (according to your workflow) created a tool path object for the basic object.

Now we can perform an on-screen preview of your design, and proceed with output of the design as an engraving job.

37. Using the **Select** tool, draw a marquee to select your design.
38. Choose **Engrave** menu >> **Output**
39. If you had previously enabled **Engrave by Color**, then you will be prompted to choose ONE of the colors in the design (or a tool path color). After sending output for that color, you will be prompted for the next color, and so on.
40. The Engrave Preview will show the design as it would be cut upon the material (Fig. 22).

    Note the following about our example screenshot:

    A) The star shape is positioned as it was within the plate, but our sign plate is smaller than the engraver bed.

    B) Contrary to our previous advice, the plate size was not set equal to the machine limits of the engraver.

    This can be fine when it suits your needs, and you can reposition the plate size upon the engraving bed.

    C) The green rectangle bounds indicate the actual machine limits that have been set for the engraver.

    D) Note the visual indication of the starting tool position, which corresponds to the **Origin** that was previously set on the **Engraver Setup** dialog.
41. In the SmartBar, you can confirm that the **Device** and **Tool** are the same as you had previously configured for output.
42. At this point, the cut data is ready to be sent from Vision 10 Software. Please confirm that the machine is online and loaded with the appropriate material.
43. At the far-right of the **Cut Toolbox** (Fig. 23), click the **Engrave** button to begin sending cut data.

    For the File-type of output port, you will be prompted for a filename and file location before generating the cut data.

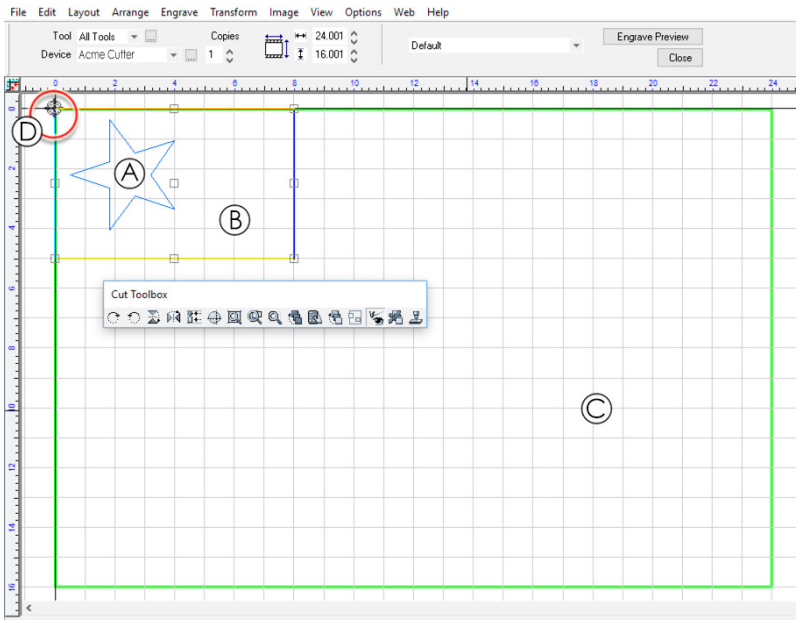

Fig. 22 - The Engrave Preview is primarily used to visually confirm that your design will be engraved within the correct location of the engraver bed.

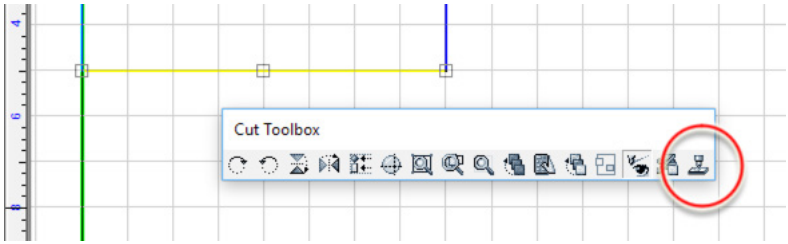

Fig. 23 - The **Cut Toolbox** provides commands for manipulating the job prior to output, such as rotate, flip, etc. At the far-right, click the **Engrave** button to output the job.

Preparing a Laser Engraving Job (printer driver)

The following sections describe how to configure a laser engraver, where the manufacturer has provided a printer driver (i.e., output will be sent using the **File** menu >> **Print** command).

1. From the Windows **Start** menu, launch Vision 10 Software.
2. By default, the **Plate Size dialog** (Fig. 24) will query for the size of your engraving bed.

   Typically, the **Width** and **Height** are set according to the Machine Limits of your engraver.

   These settings can be modified later using **Layout** menu >> **Plate Size.**

Set a Default Color Palette

3. From the **Options** menu, choose **Palette** >> **Load** >> **Set Default.**

   This command is also available through the Shop Palette context menu.
4. The **Default Palette** browse dialog will open.
5. From the Vision 10 Software install directory, browse to the **Palettes** >> **Engrave** directory.

   The Engrave directory contains color palettes for different manufacture of laser engraver. Each palette contains colors used by the given manufacturer to indicate speed and power.
6. Choose the color palette that corresponds to your laser engraver, and then click the **Save** button.
7. From the **File** menu, start a new workspace by choosing **New.**
8. Along the bottom of the workspace, note that the Shop Palette has loaded the manufacturer palette that you had previously set as the default.

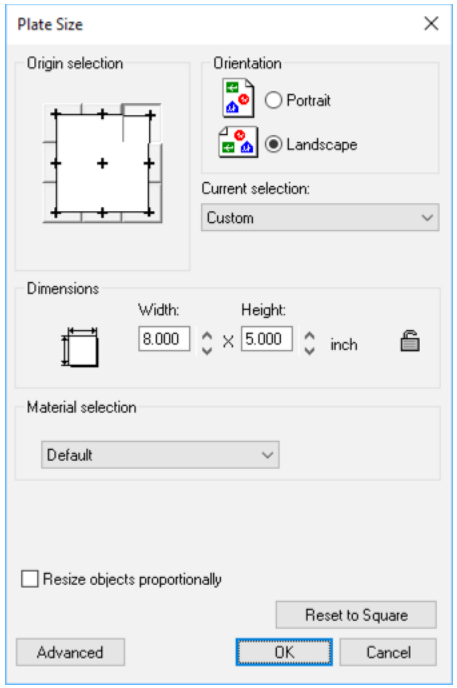

Fig. 24 - Set the plate size according to the loaded material, so that you can position your design correctly.

Setting Fill and Stroke Colors

With laser engravers that use a printer driver, object fill colors produce an engrave fill, and hairline colors produce a cutting line.

9. Set **View** menu >> **Show Fill** = ON.
10. Create a circle shape.
11. Select the circle and left-click black in the Shop Palette.

    This will assign a black fill color to the circle.
12. Draw a square that encloses the circle.
13. Select the square and left-click **Invisible** in the Shop Palette.

    This will assign an Invisible fill to the square (Fig. 25).
14. From the **Stroke and Fill Tools** flyout, choose **Tool Diameter.**
15. In the SmartBar, choose a **Hairline** style, and set a red stroke color.

Note: For the black fill color and red stroke color, these colors are defined within the printer driver to represent specific power and speed settings.

Printing to the Laser Engraver

16. From the **File** menu, choose **Print.** The **Print** dialog will open.
17. On the **Printer** tab, select your laser engraver.

    If your laser engraver is not listed, then the printer driver for the engraver must be installed.

    The printer driver might be 1) provided on a manufacturer CD, or 2) provided from the manufacturer web site.
18. Tick the **Preview** checkbox (Fig. 26).

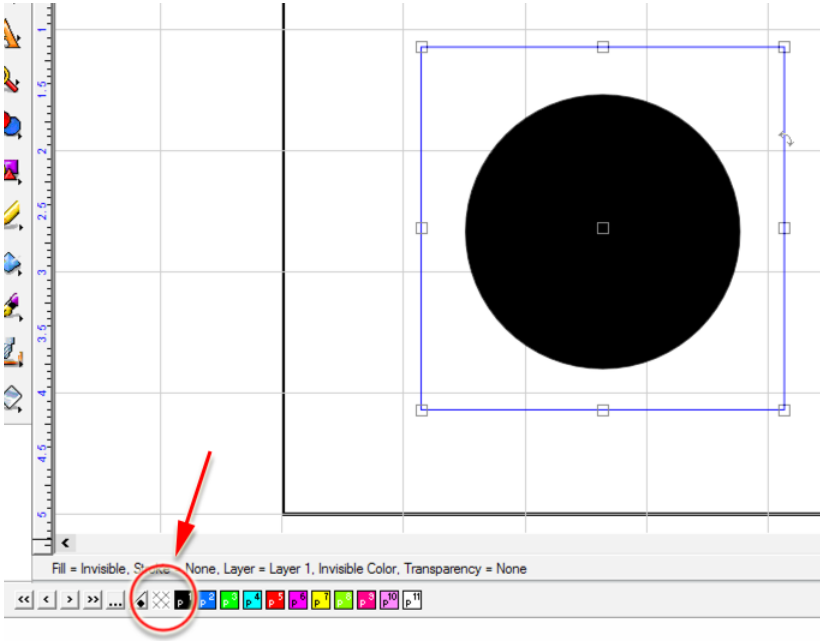

Fig. 25 - Left-click to assign a fill color. In this example, we are assigning an **Invisible** fill to the square.

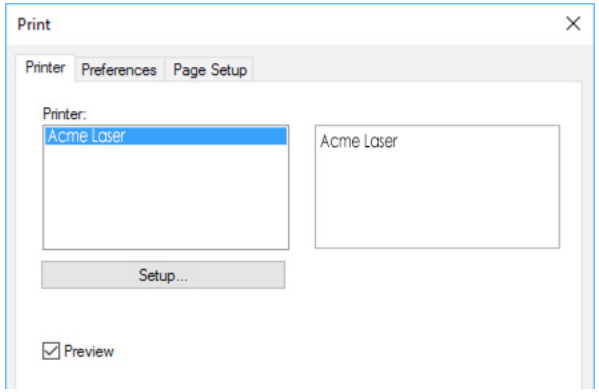

Fig. 26 - In the **Print** dialog, choose the printer driver that was provided by the manufacturer of the laser engraver.

19. Click the Preferences tab.
20. Tick the **Print as shown on screen** checkbox.
21. Click the **Plate Area** option.
22. If required, tick the **Print by Colors** option.

    The **Print by Colors** option is used to maintain a particular sequence in which the objects are cut.
23. On the **Printer** tab, click the **Setup** button.
24. The printer driver properties for your laser engraver will open.

    The printer driver controls will vary according to your model of laser engraver, such as Fig. 27.

    For specific instructions concerning these controls, please refer to the documentation provided with your laser engraver.
25. The following aspects of the printer driver should be confirmed:

    For the colors defined within the driver, adjust the power and speed settings as required.

    For each color, set the pen mode to output both raster and vector data.

    Confirm that the engraving area is correct.

    Set the cutting mode to **Black and White**.

Sending the Laser Engraving Job

26. From the **Print** dialog, click **OK** to proceed.

    The job will be previewed (Fig. 28) according to how it will be output.
27. Confirm that the machine is online and loaded with the appropriate material.
28. From the **Print Preview**, click **Print** to begin engraving.

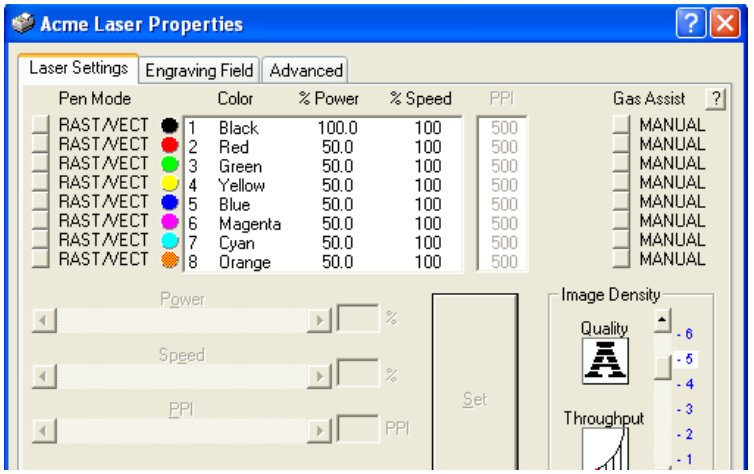

Fig. 27 - The printer driver controls will vary according to the model of laser engraver.
To learn more about the available controls, consult the Operator Manual that was included with your laser engraver.

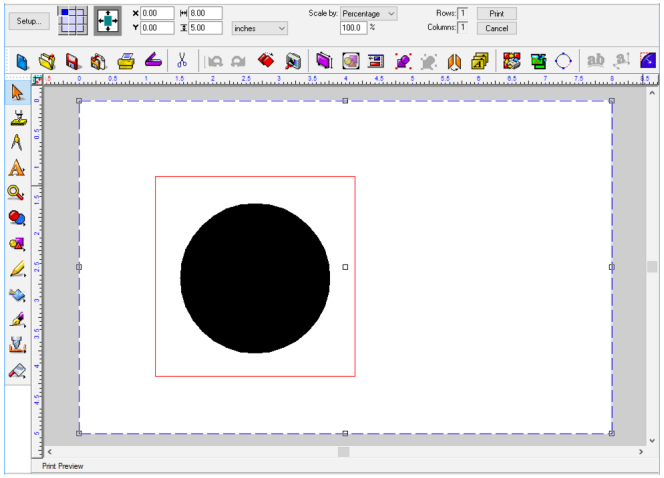

Fig. 28 - In our setup, the plate size was set to the loaded material, which was also the dimensions set for the machine in its printer driver.

Preparing a Laser Engraving Job (device driver)

The following sections describe how to configure a laser engraver, where the manufacturer has provided a device driver (i.e., output will be sent using the **Engrave** menu >> **Output** command).

Launch Vision 10 Software

Our initial task is to configure the **Output** dialog, which includes configuration of the **Engraving Defaults** dialog.

1. From the Windows **Start** menu, launch Vision 10 Software.
2. By default, the **Plate Size** dialog will query for the size of your engraving bed.

   Set the **Origin position** according to the starting position of the tool.

   Typically, the **Width** and **Height** are set according to the Machine Limits of your engraver.

   These settings can be modified later using **Layout** menu >> **Plate Size.**

Job Colors Dialog

3. Of note, there is now a **Job Colors** dialog that mirrors the Jobs Palette, though the dialog provides additional laser engraving parameters that are tied to the given color.

   Later, we will use the **Job Colors** dialog to assign engraving operations.

Engraving Defaults

4. From the **Engrave** menu, choose **Engraving Defaults.** The **Output** dialog will open (Fig. 29).
   a) Verify that the **Selected driver** is set to your engraver.
   b) Set the **Tool** drop-list to indicate the loaded tool.

      The options will vary according to your engraver choice.

      Laser Table is the default flat engraving area, whereas **Rotary Roller** and **Rotary Chuck** are special tools.
   c) Ticking the **Sort** option (Fig. 30) will enable prompts that allow you to change the sort order (prior to job output).

      When the Sort option is OFF, the default is to engrave objects in the order of creation (i.e., Database Order).

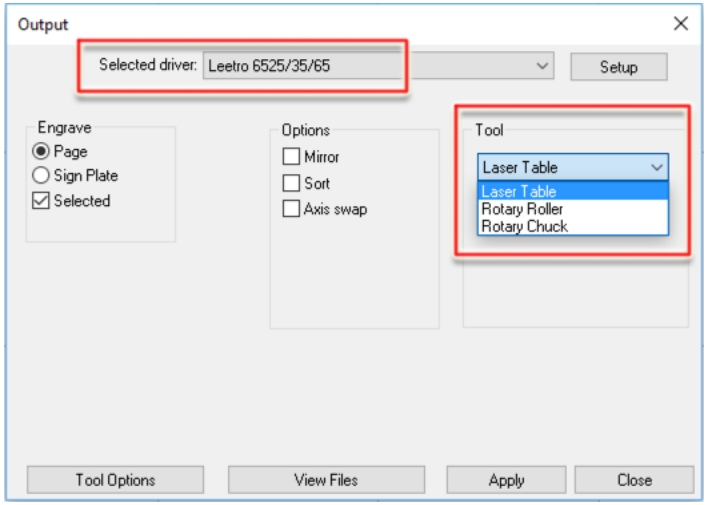

Fig. 29 - Use the **Output** dialog to set default parameters for your machine.

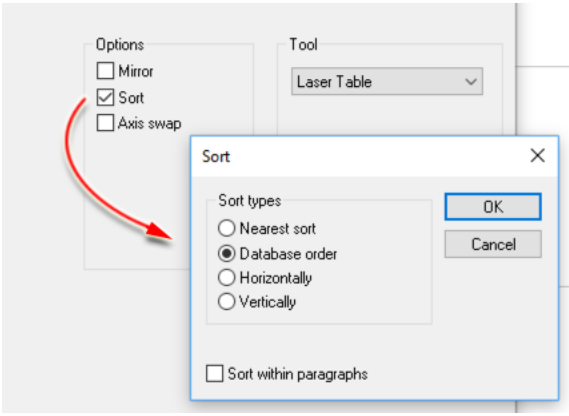

Fig. 30 - Engraving by color allows you to engrave specific portions of your design in isolation (e.g., when different tools are required for each operation).
The available sorting controls will vary according to whether tool paths are enabled.

Your chosen sort method will depend upon what you believe is best for your engraver, and the composition of your design.

d) For the **Engrave** setting (Fig. 31), choose between **Page** and **Sign Plate**, which are applied as follows:

Page: Cutting will commence at the machine's origin point. This is useful when positioning a shape that needs to be cut at a specific location.

Sign Plate: Shapes will be cut with respect to their relative positions within the sign plate.

Ticking the **Selected** checkbox will require that you explicitly select objects prior to sending output.

5. Click **Apply** to confirm your changes.

Tool Options

6. From the **Output** dialog, click the **Tool Options** button.
7. The **Tool Options** dialog (Fig. 32) is used to set the feeds and speeds that will be used with your machine.

   Where your engraver supports more-than-one tool type, these settings can be customized for each tool type.

   These settings can also be customized for different material types.
8. Click **OK** to close the **Tool Options** dialog.

Fig. 31 - Typically, you will want to restrict valid output objects to those that are on the sign plate, and which are selected.

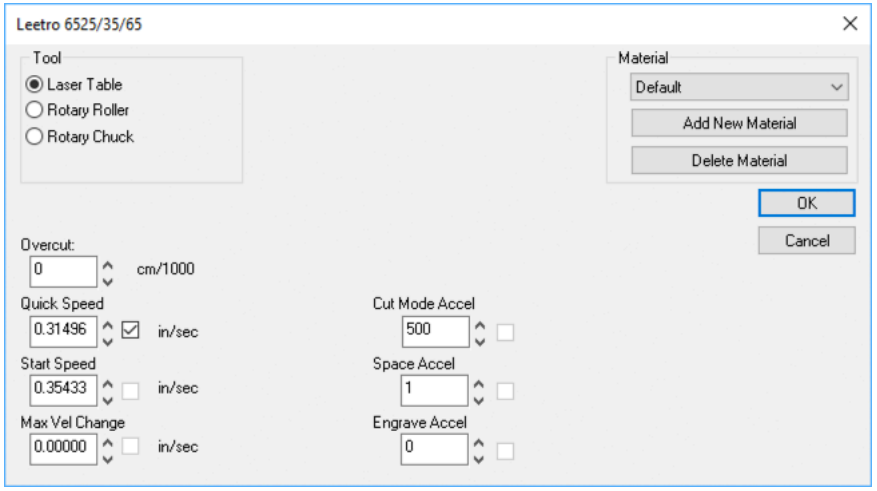

Fig. 32 - The tool options vary according the engraver model. Set these options according to what is recommended for the given tool, and the loaded material.
Note that your Operator Manual will provide specific information about how these options should be set for your engraver model.

View Files

9. From the **Output** dialog, click the **View Files** button to display jobs that are currently stored at the machine's control panel.

   To view pending jobs from the machine's control panel, the **Port** setting must be EZUSB.

   Optionally, the control panel configuration can be reset.

Machine Limits

10. From the **Output** dialog, click the Setup button.
11. The **Engraver Setup** dialog will open.
12. On the **Engraver** tab, confirm that the **Machine Limits** do not exceed the actual limits of the engraver (Fig. 33).

Port Configuration

13. Click the **Notes** button (if any), and review the configuration comments. These comments will provide you with specific advice as to what port configuration settings should be applied.
14. Click the **Port** tab (Fig. 34).
15. For output, note that the **Method** is **Direct to port**
16. For the **Port Location**, there will be several options according to what Windows reports as being available. However, you want to choose from the following:

    EZUSB: Use this port when the laser engraver is connected via a USB port.

    FILE: Use this port when saving output files to a USB flash drive, which must subsequently be connected to the laser engraver.

17. Click **OK** to close the **Engraver Setup** dialog.
18. Click **OK** to close the **Output** dialog.

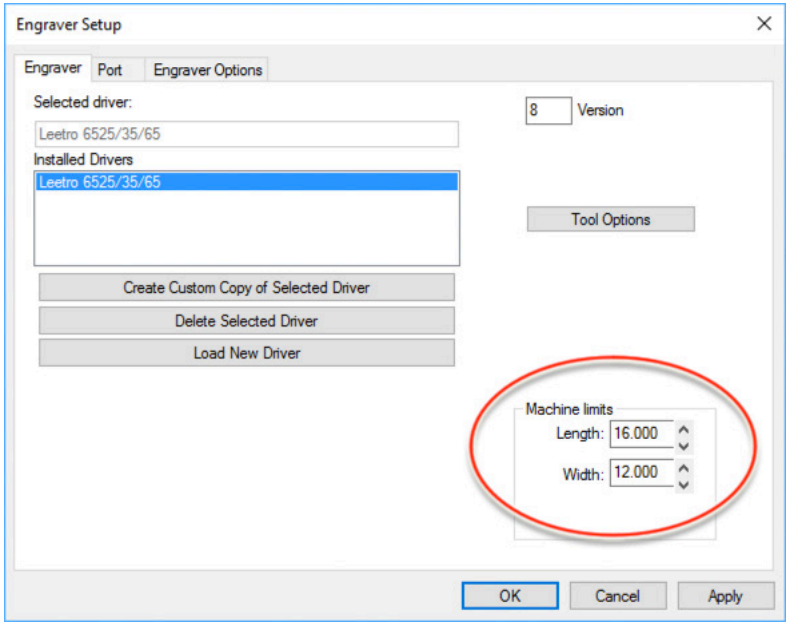

Fig. 33 - Confirm that the **Machine Limits** are correct for your engraver. Also, click the **Notes** button (if any) to review port configuration comments that are specific to your engraver.

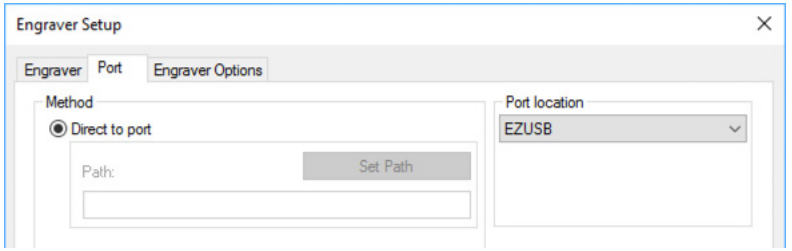

Fig. 34 - When setting the **Port Location**, consider the comments that are provided with the driver.
Engraver tab >> **Notes** button

Assigning Cut Colors

Whereas rotary engraving involves the application of tooling operations to a given shape, laser engraving operations are determined by the shape fill color.

The **Job Colors** dialog displays the cutting parameters that a given color represents, and double-clicking that color reveals additional, advanced parameters.

For now, let us assign a fill color and consider its cutting parameters.

19. Note that the **Job Colors** dialog is initially empty because we have not assigned any colors yet.

    If the **Job Colors** dialog is not visible, then use **View** menu >> **Palettes** >> **Show Job Palette.**

20. Within the **Shop Palette**, left-click the first **Black** color plate (Fig. 35). This will set the fill color to Black.

    The Shop Palette is typically at the bottom of the workspace, and it contains all the colors that are available to the workspace.

21. From the **Shape Tools** flyout, choose the **Rectangle** tool.
22. Draw a polygon shape, which will have a black fill.
23. Tap **[Space]** to exit the polygon drawing state. The polygon should now be the current selection.
24. Notice that the **Job Colors** dialog now lists the black color (Fig. 36), including several parameters that indicate how the polygon will be cut.
25. Some of the key information shown is the cutting **Mode** (i.e., in what way the polygon will be cut) the **Speed** at which the polygon will be cut, and the **Power** that the laser engraver should apply.

    Note: Additional parameters can be viewed by double-clicking the color. These parameters are discussed in the Engraving Fill Colors section.

26. If any of the parameters need to be modified, then click the Save button afterwards. Otherwise, the parameters will revert to their previous values when editing this design in future.

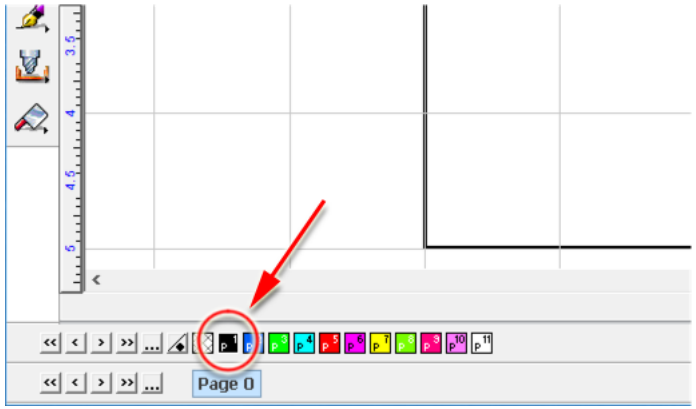

Fig. 35 - The Shop Palette displays the available colors that can be applied to shapes.

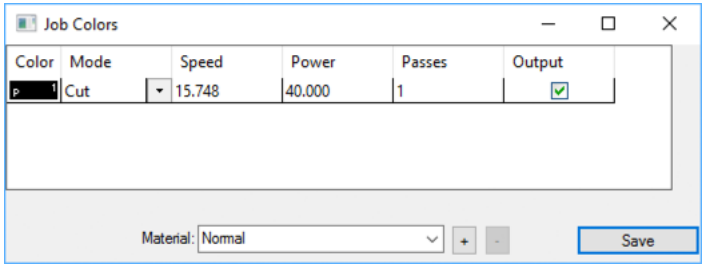

Fig. 36 - The **Job Colors** dialog shows all the colors that have been assigned to shapes, and the cutting parameters that each color represents.

After changing any parameters, click **Save** to retain those changes.

Previewing and Cutting the Tool Path

27. From the **Engrave** menu, choose **Output.**
28. The polygon will now be previewed in Engrave Preview mode.
29. Note the following:

    Crosshairs will indicate the starting position of the tool (Fig. 37). These crosshairs will correspond to the **Origin selection** setting on the **Plate Size** dialog.

    If the preview has zoomed to the rectangle, then **Page** was set on the **Output** dialog.

    If the preview has zoomed to the sign plate and shows the relative position of the polygon (within the sign plate), then **Sign Plate** was set on the **Output** dialog.
30. In the SmartBar, verify that both the **Device** and **Tool** are the same as were set within the **Output** dialog.
31. At this point, the cut data is ready to be sent from Vision 10 Software. Please confirm that the machine is online and loaded with the appropriate material.
32. On the **Cut Toolbox**, clicking the **Engrave** button (Fig. 38) will begin the sending of cut data.

    Note: If the Port Location of the Engraver Setup dialog had been set to "FILE:", then Vision 10 Software will prompt for a filename and file location before saving the cut data.

At this point, you have confirmed that Vision 10 Software is able to output jobs to your laser engraver, and you should be in a good position to learn more about how to prepare laser engraving jobs.

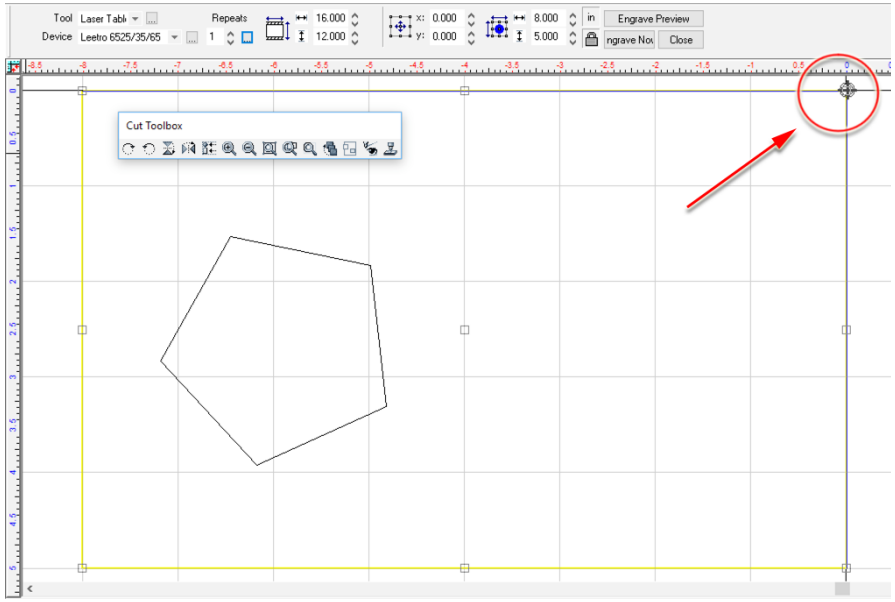

Fig. 37 - The Engrave Preview is primarily used to visually confirm that your design will be engraved within the correct location of the engraver bed.
At the top right, the starting position of the tool corresponds to the **Origin selection** of the **Plate Size** dialog.

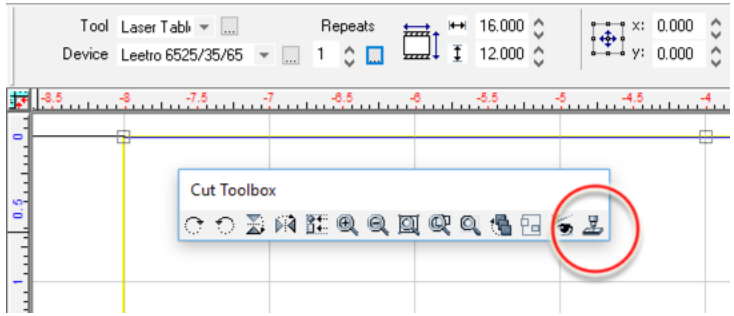

Fig. 38 - The **Cut Toolbox** provides commands for manipulating the job prior to output, such as rotate, flip, etc. At the far-right, click the **Engrave** button to output the job.

Setup Procedures

Engraving Fill Colors

Note: This section concerns laser engravers that output jobs via a printer driver. For such engravers, fill colors are used to designate engraving operations, and stroke colors are simply not used.

Along the bottom of the workspace, the **Shop Palette** contains the various colors that can be assigned to shapes, text and bitmaps. Each color represents a specific set of engraving operations, such that applying a fill color defines how the given object will be rendered. In the case of bitmaps, the fill color does not affect the visual on-screen presentation, but the fill color does determine how that bitmap will be engraved.

The **Job Colors** dialog (Fig. 39) lists all fill colors that have been applied on the workspace. The dialog also displays the main engraving parameters that each color represents. More parameters are available, which can be viewed by double-clicking the color to open the **Edit Color** dialog (Fig. 40).

Though Vision 10 Software is supplied with a handful of Shop Palette colors to get you started, the expectation is that you will add, remove and customize the colors to better suit your

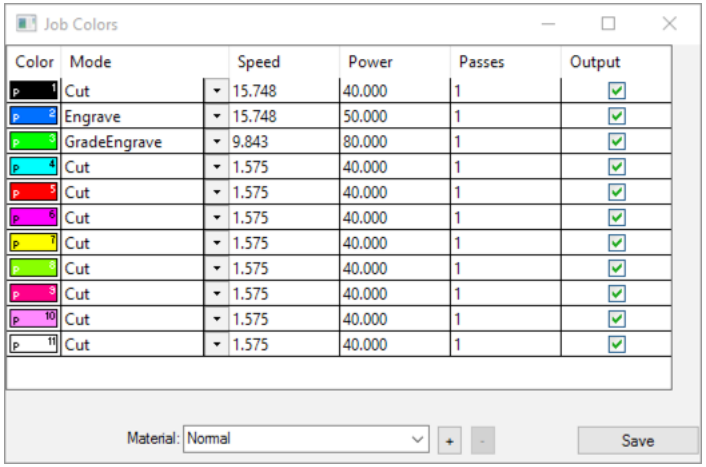

Fig. 39 - The **Job Colors** dialog is linked to the **Job Palette**, and both are shown via **View** menu >> Palettes >> **Show Job Palette.**

specific workflows. For example, it is useful to decide what general hues will be displayed on the workspace, so that you can visually discern the engraving modes that have been applied.

Material Setting

The **Job Colors** dialog is organized per the **Material** drop-list. This allows you to have colors that still represent the same engraving modes (e.g., red for cutting, green for holes, etc), though vary the speed or power according to the material.

To clearly differentiate between specific named materials, click the [+] button and name each material. The engraving parameters of each color then need to be set for each material type.

The current material is also shown on the **Edit Color** dialog, though the material can only be changed on the **Job Colors** dialog.

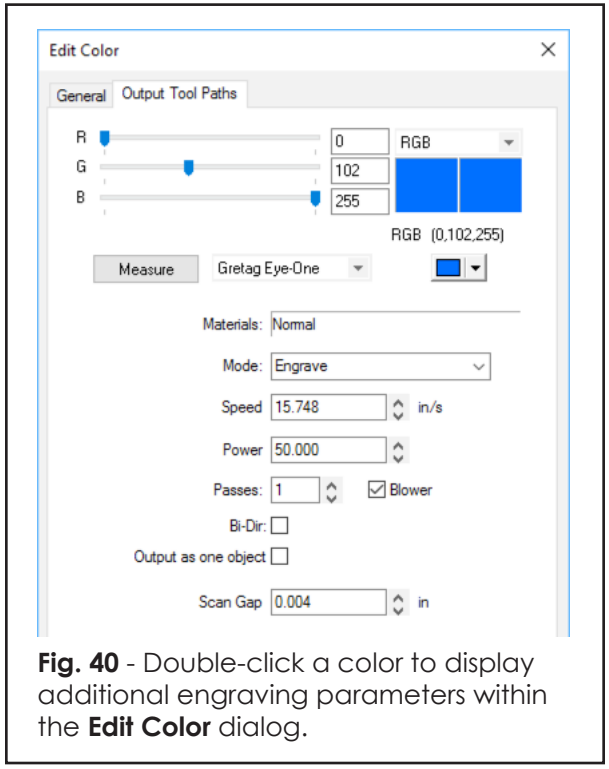

Fig. 40 - Double-click a color to display additional engraving parameters within the **Edit Color** dialog.

Saving Job Color Parameters

After configuring the engraving parameters for colors listed within the **Job Colors** and/or **Edit Color** dialogs, it is **CRITICAL** that your settings be saved by clicking the **Save** button. Otherwise, the next time that you load or create a design, you will find that changes to your engraving parameters have been discarded.

Since engraving parameters are associated with specific color values, it is useful to create a custom Shop Palette that has the colors you want. The Vision 10 Software help file provides instructions for saving your custom Shop Palette and setting as the default palette used by Vision 10 Software.

See also: "Backing Up Your Engraving Parameters" on page 69

Main Engraving Parameters

The main engraving parameters and controls on the Job Colors dialog are as follows:

- **Mode** - This is the type of engraving that will be applied to the given shape.
- The **Cut** mode is a vector engraving mode that cuts the shape outline (i.e., a vector shape).
- The **Engrave** mode is a raster output mode that will cut the entire shape by repeatedly sweeping back-and-forth across the entire length of the shape. This mode engraves bitmaps at the indicated power setting.
- The **GradeEngrave** mode is designed to create rubber stamps that have a slight grade along the shape contour. The width should be set to give the stamp sufficient support.
- The **3D** mode is a raster output mode that varies power according to grayscale values within an image. Maximum power will be applied to black portions of the grayscale, though this will be attenuated according to lightening shades of gray, with white being zero power.
- The **Hole** mode simply cuts holes, either at intervals along a shape contour, or at the shape center.
- **Speed** - The velocity at which the shape will be engraved.
- **Power** - The wattage at which the shape will be engraved.

- **Passes** - Indicate the number of times that the engraving operation will be performed. For example, it may be desirable to repeat a cutting operation.
- **Output** - The checkbox indicates that the shape color will be output. To prevent a shape from being output, clear the checkbox of its fill color.
- **Material** - All of the color engraving parameters are saved according to the selected Material. By default, the material is "Normal" to indicate the typical material that is loaded into the machine. Click the [+] key to add alternative material names.

  See also: "Material Setting" on page 65

- **Save** - After changing any engraving parameters, it is **CRITICAL** that you settings be saved by clicking the **Save** button.

Additional Engraving Parameters

The additional engraving parameters available on the **Edit Color** dialog are as follows:

- **Blower** (All Modes) - This option controls the air tube that is used to collect small particulate.

  Note: This option has no control over a manually operated compressor system. You must ensure that air flow is unobstructed during operation.

- When in Cut Mode, there is an additional blower choice between While and Always. The **While** option will cause the blower to operate only in conjunction with the laser firing, whereas the **Always** option will cause the blower to operate for the entire duration that the engraver is processing the shape.
- **Corner Power** (Cut Mode only) - Due to how the machine must decelerate and accelerate when cornering, this causes the laser to essentially linger longer than intended in the vicinity of the given corner (i.e., can burn the shape corners). By reducing the power during cornering operations, this compensates for the laser moving slower at the corners.

- **Scan Gap** (Engrave, GradeEngrave and 3D Modes) - For the back-and-forth motions across a shape (or image), the scan gap is the rate at which each successive pass advances across the shape.
- If this is set too low, then engraving will essentially dwell overmuch over the shape, causing excessive heat to be applied.
- If this is set too high, then engraving across the shape will be too fast for cutting to be effective, thereby causing lost detail.
- **Grade Width** (GradeEngrave Mode) - This is a slight angle along the shape contour that forms a supporting shoulder to the stamp shape.
- Min Power (GradeEngrave and 3D Modes) - Though it would be ideal that the laser have a linear power output from 0% through 100%, in actuality there will be lower cutoff (say below 15%) where there is no cutting effectiveness. As such, it is prudent to set this to the lower cutoff, so as to ensure that all cutting motions have some measure of cutting power.
- **Hole in Center** (Hole Mode) - If this checkbox is ticked, then a single hole will be placed at the center of the shape.
- **Hole Interval** (Hole Mode) - As an alternative to placing a single hole at the shape center, multiple holes can be spaced along the shape contour, per the distance that is specified here.
- **Radiation Time** (Hole Mode) - When burning a hole, this field indicates the duration for which the laser will be sustained upon the given point.

Backing Up Your Engraving Parameters

Note: At the time of writing, a streamlined method of backing up your engraving parameter files is being implemented. In the meantime, your files can be backed up manually, as described within this section.

If you need to reinstall your Windows system, or copy engraving parameters for use with Vision 10 Software on a different system, then this section describes where to obtain the configuration files that contain your custom engraving parameters. There are two files that you need, both located in the main Vision 10 Software install directory.

1. Choose **Engrave** menu >> **Engraving Defaults** to open the **Output** dialog.
2. Make note of the **Selected Driver.**
3. In the Vision 10 Software install directory, there is an INI file that is named for the selected driver. The name will not be exact, but you should be able to determine a partial name match.
4. Once you have located the INI file, copy it to another directory in preparation for backup.
5. Open the INI file in Notepad.
6. Search for the following field:

   XMLColorData

7. The XMLColorData field will point to an XML file.
8. In the Vision 10 Software install directory, locate the XML file and copy it to another directory in preparation for backup.

At this point, you should have both the INI and XML files ready for backup. To use these files with another installation of Vision 10 Software, simply copy them into the Vision 10 Software install directory.

If you have more than one laser engraver, then you must repeat these steps for each engraver, per the **Selected Driver** setting in the **Output** dialog.

Wrong Mode Setting

Before previewing a job, or sending a job for output, if any of the design objects has an incorrect **Mode**, then the **Wrong Mode Setting** dialog will prompt you to correct the design. The incorrect object will be selected, at which point you can either assign a different fill color, or set a different Mode within the **Job Colors** dialog. If there are two-or-more incorrect objects, then the dialog will prompt you to make a correction to each object, one-by-one (Fig. 41).

For bitmaps, the Mode should be either Engrave or 3D.

For plate or contour cut objects, the Mode should be Cut.

When an object has been corrected, click **OK** to proceed to the next object (if any).

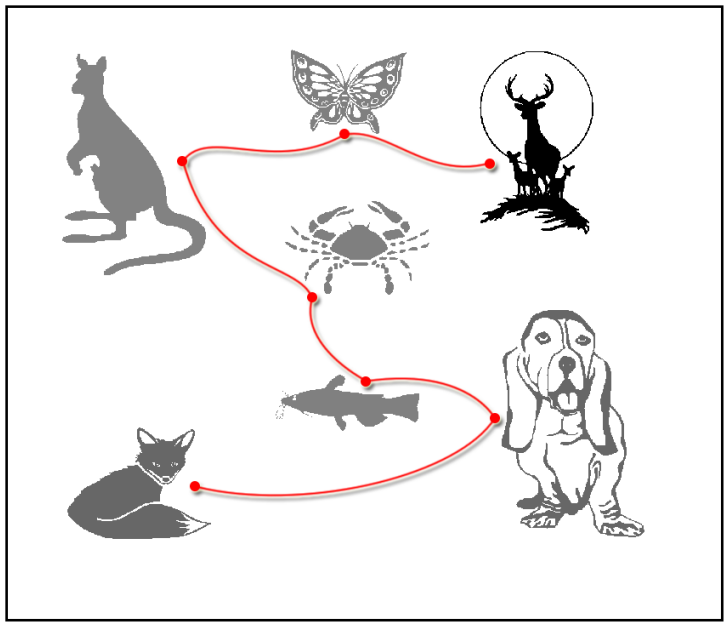

Fig. 41 - It there are any objects that have an incorrect Mode setting, then one-by-one you will be prompted to make correction.

Cutting Interlocking Parts Using a Laser Engraver

Engrave menu >> **Create Tool Path** >> **Male**

Engrave menu >> **Create Tool Path** >> **Female**

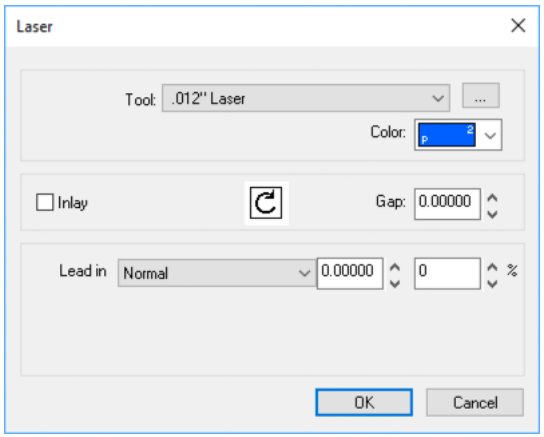

Fig. 42 - To cut parts using a laser engraver, create either a Male or Female toolpath, which will be converted into vector data that your engraver can output.

When cutting parts using a rotary engraver, toolpath operations are assigned to each shape, and the type of toolpath has a bearing upon how the tool will follow the shape contour (such that interlocking parts will be flush). For example:

- If you wanted to cut a square part that was precisely 1" per side, then you would apply a Male toolpath.
- If you wanted to cut a square part that would fit within a 1" square hole, then you would apply a Female toolpath.

As with rotary engravers, a toolpath operation (Fig. 42) can be used with laser engravers. However, an automatic conversion process will produce a vector shape instead of a toolpath operation.

The characteristics of the vector shape will vary according to whether your laser engraver uses a printer driver, versus that of a device driver.

- (printer driver) The shape will have an Invisible fill, but its hairline color will correspond to what was set for the toolpath operation.
- (device driver) The shape fill color will be the indicated toolpath color, but the shape will not have a hairline.

For example, suppose that you want your laser engraver to cut a part, and the cut must be performed using a Male toolpath. The procedure would be as follows:

1. On the workspace, select the shape that will serve as the basis for the toolpath operation.
2. From the Engrave menu, choose **Create Tool Path** >> **Male**
3. **The Laser** dialog will open.
4. From the **Tool** drop-list, chose the tool width that will be simulated.
5. Set the **Color** according to the desired power setting.

- (printer driver) The power setting of each color is set within the printer driver.
- (device driver) The power setting of each color is set with the **Job Colors** dialog.

6. Click **OK** to create the toolpath.

At this point, instead of a toolpath, a vector shape will be created that will produce the desired cutting operations using your laser engraver.

Setting the Output Area

Layout menu >> **Plate Size**

Engrave menu >> **Engraving Defaults** (Output dialog)

From the control panel of your engraver, you have manually set the machine origin to a corner of the loaded material (e.g., top-right, top-left, etc.).

Optionally, you have jogged the cutting tool to specific coordinates within the material, where you want cutting to commence.

Within Vision 10 Software, you need to indicate the size of the loaded material, the origin position of the tool, and whether you have jogged the tool.

1. **Plate Size** dialog: Set the dimensions of the loaded material.
2. **Plate Size** dialog: Set the **Origin selection** according to the given corner of the loaded material.
3. **Output** dialog: Click **Setup**, and confirm that the **Machine Limits** correspond to the physical limits of your engraver.
4. **Output** dialog: Set the **Engrave** options (Fig. 43) as follows:

- **Page:** Shapes will be cut with respect to the bounding box of the selected design. This is useful when positioning the design to be cut at a specific location (e.g., after jogging the cutting tool).
- **Sign Plate:** Shapes will be cut with respect to their relative positions within the sign plate.

Fig. 43 - On the **Output** dialog, the **Page** and **Sign Plate** options determine what area of the plate size will be cut.

Example - Page setting

For a rectangular piece of material, suppose that the machine origin position has been jogged (via the machine control panel) to a specific position within the material.

In this case, you would use the **Page** setting, so that objects would be engraved according to their bounding box (Fig. 44).

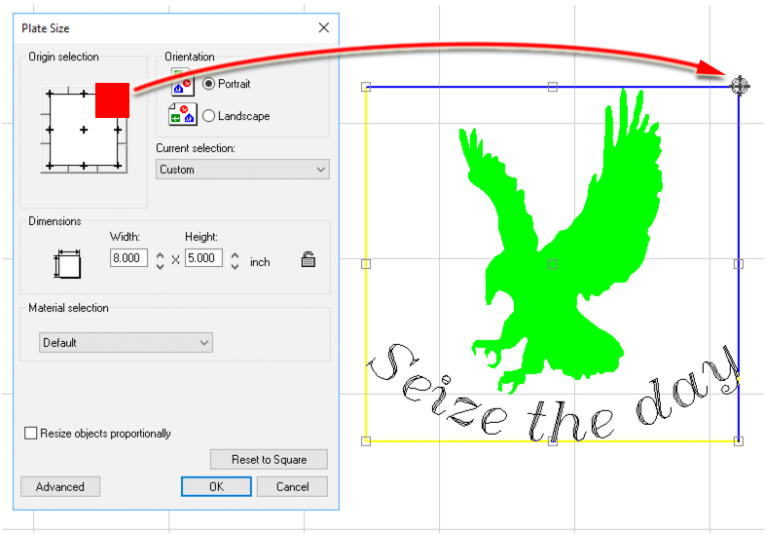

Fig. 44 - Using the **Page** setting, a design will be cut with respect to its bounding box.

In the engraving preview, note the registration mark that corresponds to the **Origin selection** of the **Plate Size** dialog.

Example - Sign Plate setting

For a rectangular piece of material where the **Sign Plate** setting is being used, the machine origin position (via the machine control panel) should correspond to the corner indicated within the **Plate Size** dialog. Objects will then be cut with respect to their position upon the sign plate (Fig. 45).

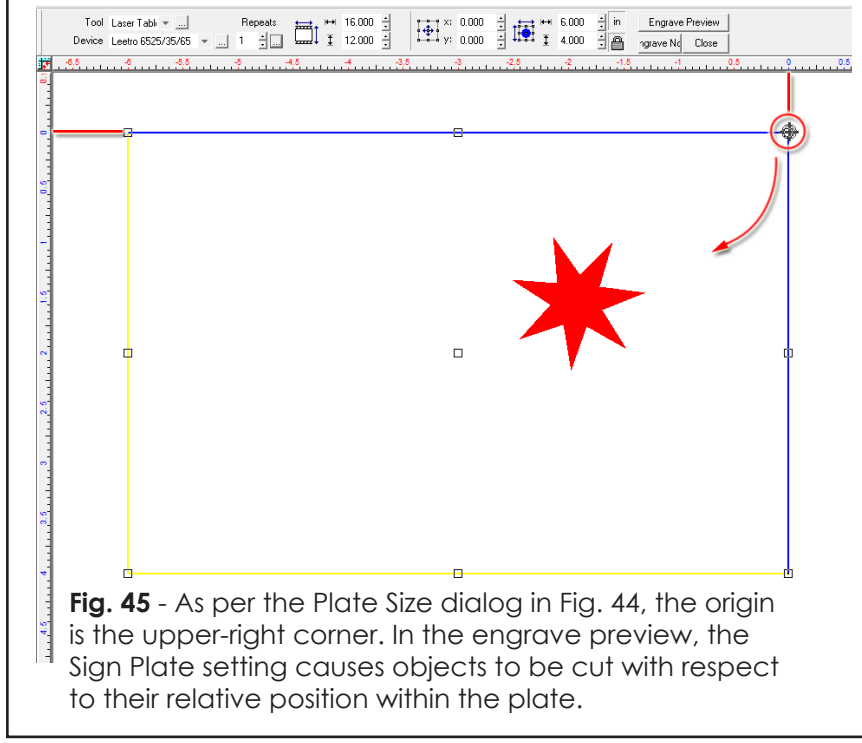

Fig. 45 - As per the Plate Size dialog in Fig. 44, the origin is the upper-right corner. In the engrave preview, the Sign Plate setting causes objects to be cut with respect to their relative position within the plate.

Example - Sign Plate with Rotary Chuck

For a cylindrical piece of material (such as a ring), a rotary chuck attachment must be used. In order for Vision 10 Software to correctly drive the machine, the following conditions must be observed:

- The design must fit within the bounds of the plate size.
- Confirm that the origin of the plate size is correct.
- The height of the plate size (Fig. 46) should correspond to the circumference of the cylindrical work piece.
- In order to obtain an accurate height, it is good practice to measure the circumference with perhaps measuring tape, or a length of string.
- From the **Output** dialog, the **Engrave** setting should be **Sign Plate** (not Page).

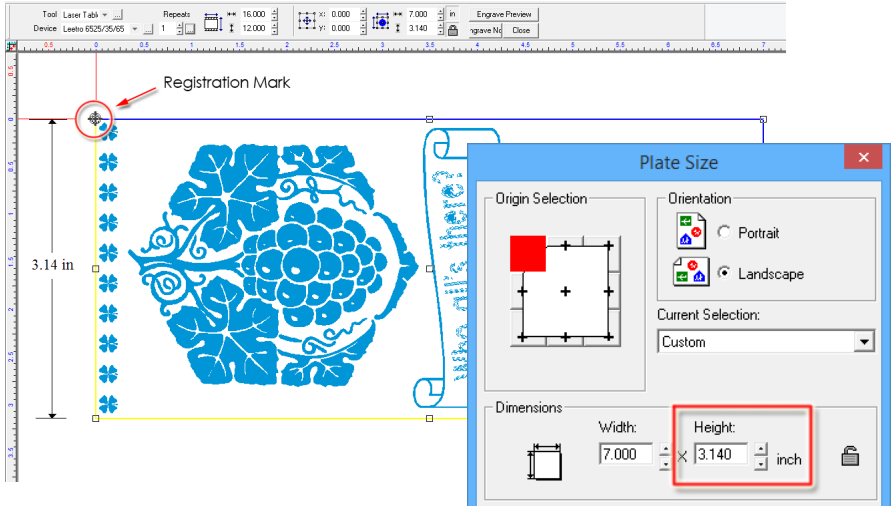

Fig. 46 - This series of repeating shapes is arranged to fit onto a cylindrical object of 1-inch diameter, with a width of 1/4". As such, the plate height is 3.14". Note in this case that the origin has been placed at the top-left, as indicated by the registration mark (circled).

Show Traveled Distance

Engrave menu >> **Show Traveled Distance**

For a selected object, the **Traveled Distance** dialog (Fig. 47) will state the total distance for which the laser will be On/Off, and this will also be represented as a percentage.

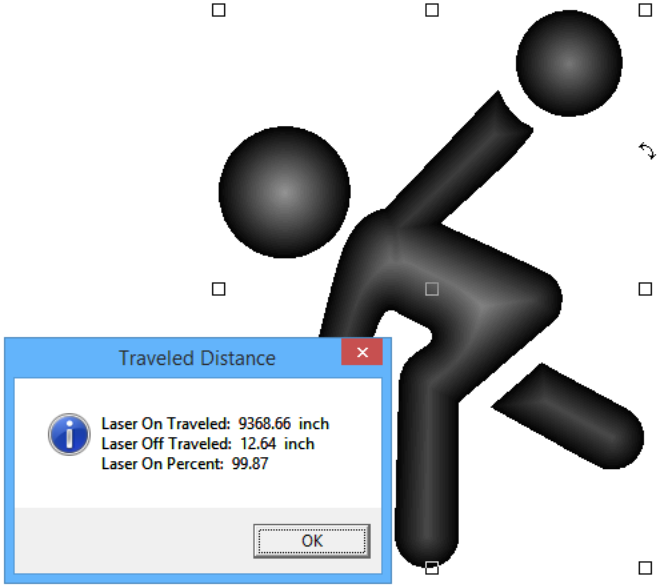

Fig. 47 - Inspecting and comparing the traveled distance between jobs can aid you in estimating the work involved (particularly for intricate jobs), thereby helping you to price jobs consistently.

Previewing a Job Before Output

In addition to the Engraving Preview that is used to confirm positioning of the job upon the loaded material, there are two additional tools:

- **3D Viewer** - Simulate the tool path movements, so you can verify the expected operations.
- This uses the **Show 3D** command, which is available for all versions of Vision 10 Software, except for laser engravers that output jobs via a printer driver.
- **Output Preview** - Simulate the finished job, such that imperfections can be identified prior to output.
- This uses the **Show Output Preview** command, which is only available for laser engravers that output jobs via a printer driver.

3D Viewer

View menu >> **Show 3D**

After applying tool paths to your design, the 3D Tool Path Viewer can be used to simulate the design as it would appear when being cut out of the given material. The simulated progress of the tool may be observed to verify the intended operations.

The following is a typical sequence in which the viewer could be used:

1. Import or create a grayscale bitmap.

   In our example, we imported an STL file, which was automatically converted to a grayscale bitmap that was based upon our desired 2D view.
2. From the **Engrave** menu, choose **Create Tool Path** >> **Relief Fill**, and apply tooling operations that define the depths at which grayscale values should be cut per the bitmap.
3. With the resulting tool path selected, choose **View** menu >> **Show 3D.**
4. The **3D Viewer** window will open (Fig. 48).
5. Optionally, at the top-right, use the texture picker to choose the appearance of the simulated material. Also, the **Fill color** is used in cut areas.
6. Click the **Isometric** button to set a viewing angle that will allow you to observe the depth of the cut design.

   Use the to further move, rotate and zoom the preview.
7. Click the **Animate** button to begin the simulation of the tool moving across the material and cutting out the design.
8. If desired, the simulation can be paused, and the speed of the playback can be increased.

   Clicking **Stop** will exit the animation.
9. Once the animation is complete, click **Save** to create a proof that a customer can inspect.

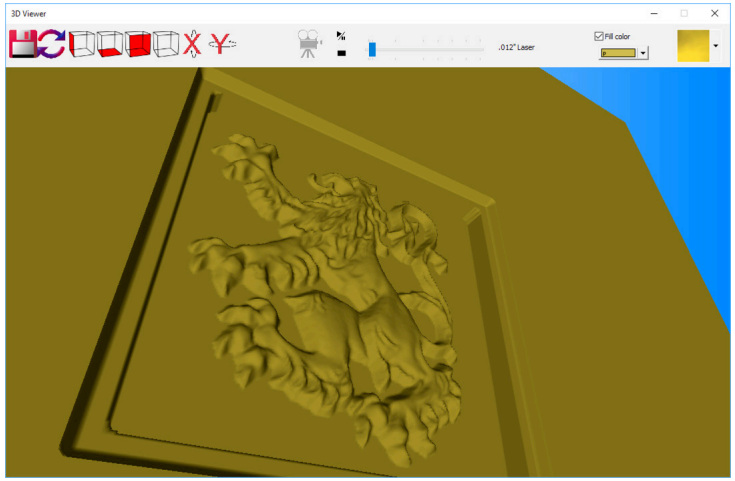

Fig. 48 - After animating a job in the **3D Viewer**, the image can be saved as a file for use as a customer proof.

Output Preview

View menu >> **Show Output Preview**

For laser engraving jobs that will be output via a printer driver, use the output preview to identify issues within your designs. If something appears odd in the preview (Fig. 49), then it might need to be addressed before actually sending the job.

To help resolve issues, consider the following:

- Monochrome images are usually assigned an **Engrave** mode.
- Grayscale images generally work best with a **3D** mode.

Note: These suggestions do not cover all possible design possibilities. The result will largely depend upon your particular design and the intended material that will be engraved. The output preview will seek to visually represent how a given object will appear when engraved.

Fig. 49 - For this preview of two duplicate grayscale images, the left has an **Engrave** mode, whereas the right has a **3D** mode. In this case, the **3D** mode is the correct setting.

Creating an Engraving Fill for Text and Graphics

Note that when simply placing one shape within another, a fill operation will engrave the outer shape without consideration of the inner object (Fig. 50). The correct technique is to combine two such shapes into a single path, and then the engraving operation may be applied.

1. Select the text object and then choose **Arrange** menu >> **Text to Graphics**.
2. Select both the text object and the surrounding object.
3. Choose **Arrange** menu >> **Make Path.**
4. Assign the desired engraving operation.

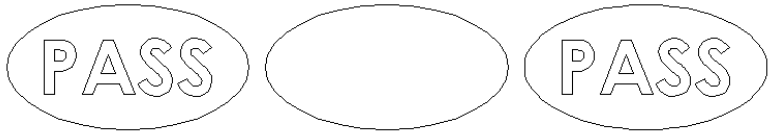

Fig. 50 - To correctly engrave text that has been nested within another shape, the shapes must be combined into a single path.

- On the left are two shapes that each have been applied with an engraving fill color.
- The middle simulates how the shapes will appear without combining into a single path (i.e., the outer fill obliterates the inner fill).
- On the right, the shapes were merged into a single path, so that the engraving fill does not obscure the text.

Using Fuse Weld

Before applying an engraving fill to overlapping objects, first weld the shapes into a single object (Fig. 51). This will eliminate tool operations from being repeating within overlapping regions.

1. Select the objects and choose **Weld** Tools >> **Basic Weld.**
2. Create a fill tool path via **Engrave** menu >> **Create Tool Path** >> **Fill.**

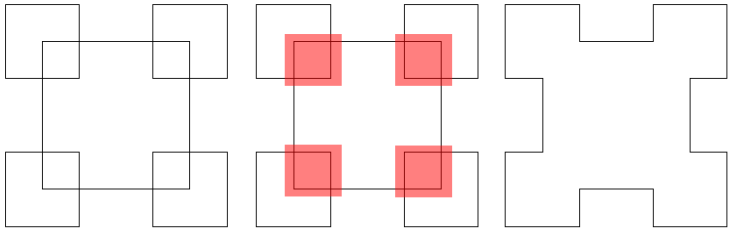

Fig. 51 - On the left is the original design. In the middle, the shapes were not welded before creating tool paths, which creates overlapping areas that will be visibly burnt due to being lasered twice. On the right, the shapes are welded into a single shape.

Creating Line Fonts

In addition to the line fonts that are included during Vision 10 Software installation, an existing TrueType or Adobe Type 1 font can be used as the basis for an engraving line font. The result is then saved as a VEF font that can be node edited.

1. Choose **Edit** menu >> **Edit Character**
2. A special **Character Picker** dialog will open.

Filter Fonts for TrueType and Adobe Type 1

3. Click the **Browse** button to open the Font Detective.
4. Set the **Group** drop-list = All Fonts
5. Tick the **Show filter** checkbox.
6. On the **Font Type** tab, clear all the checkboxes except for TrueType and Adobe Type 1.
7. Click the **Filter** button.

Choose the Starting Font

8. From the **Font** drop-list, choose either a TrueType of Adobe Type 1 font.
9. Click the **Select** button.
10. In the **Character Picker,** the drop-list should indicate the selected font.
11. From the **Font Operation** drop-list, choose **Center Line**.
12. At this point, a progress bar will indicate completion of the new line font.

    Several minutes may be required to complete line calculations for each font character.

13. Click the **Close** button.
14. Use **File** menu >> **Exit** to shut down Vision 10 Software.
15. The Save Font dialog will prompt to save the newly created line font.
16. Click **Yes**.
17. The **Save Font** dialog will prompt for a unique name for the new line font.

    Make note of the font name and save location.

Using the New Line Font

18. Re-launch Vision 10 Software.
19. Choose **File** menu >> **Install Fonts.**
20. Use the Install Fonts dialog to locate and install your line font.

    The new line font will be in VEF format.

To node edit the individual letters of your line font, choose **Edit** menu >> **Edit Character,** and then click letters within the **Character Picker.**

Importing from CorelDraw or Adobe Illustrator

Vision 10 Software supports a wide range of commonly used file formats, such that you can work in the design environment that is most comfortable for you. The resulting design can then be brought into Vision 10 Software for further output preparation. The following sections provide advice about how to use some of the more common file formats. Though CorelDraw and Adobe Illustrator are mentioned, the advice is typical of how to use these file formats with other design applications.

Create a Design in Vision 10 Software

If you do not already have a design for importing, the design can be created in Vision 10 Software.

For designs that will be used to create multiple badges, creating a plate design within Vision 10 Software provides greater control for customizing the text frame properties to automatically adjust text size and kerning for each badge. See “Create a Plate Design” on page 97.

Import a Design from CorelDraw

Choose from the following methods to bring a design from CorelDraw to Vision 10 Software. To preserve font information, avoid converting text to graphics when importing or exporting.

A) From the CorelDraw **Standard** menu, click the **Send to Vision 10 Software** button. You will be prompted to choose the data format that will be sent to Vision 10 Software.

B) From the CorelDraw **File** menu, choose **Save As** and save the design as an AI file. When saving, do not use a file compatibility greater than Adobe Illustrator 8.0 .

C) From the CorelDraw **File** menu, choose **Export** and save the design as an EPS file. Check that text is being exported as text.

D) From the CorelDraw **File** menu, choose **Publish to PDF**. Note that the PDF publish settings can be used to embed font information within the PDF file.

Import a Design from Adobe Illustrator

Use the following method to bring a design from Illustrator to Vision 10 Software. To preserve font information, avoid converting text to graphics when importing or exporting.

- From the Adobe Illustrator **File** menu, choose **Send to Vision 10 Software.**
- When saving an AI or PDF file, set the subset fonts at 1% to embed font information within the file.

Tracing Artwork into Cut Paths

See also: "Vectorizing Images into Line Art" on page 181

Often a customer will provide sample artwork or business cards that are of relatively poor quality for engraving. In such a case, use the AccuScan image editing features to clean up and trace the artwork into vector paths that can be cut.

Importing a Bitmap Image

Your Vision 10 Software installation directory contains a Tutorial sub-directory. Within the Tutorial directory are sample files that can be used with the following procedure.

1. From the **File** menu, choose the **Import** item. The **Import** File dialog will open.
2. Browse to the **Tutorial** directory and choose the cortech.tif file.
3. Click **Import** to proceed.
4. Click on the workspace to place the imported file (Fig. 52).

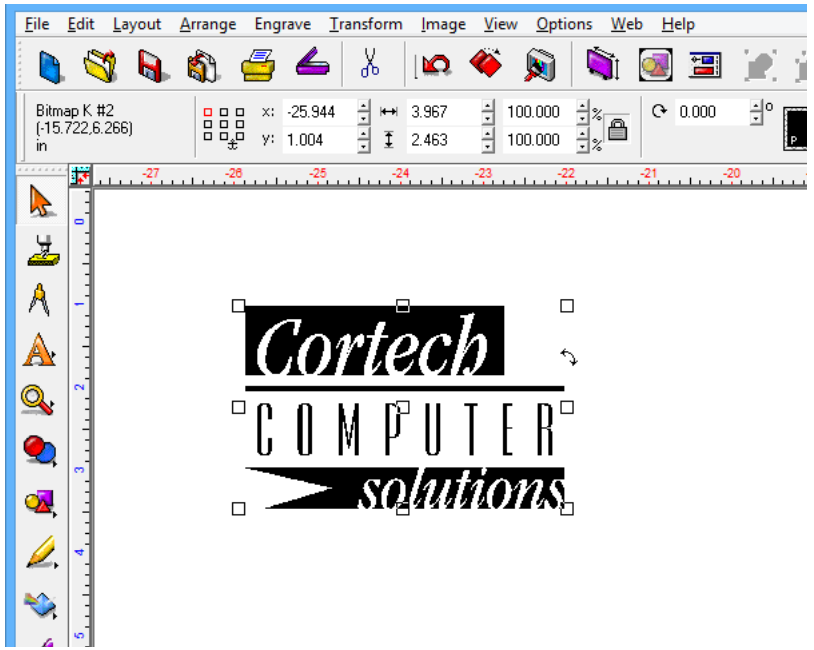

Fig. 52 - An imported image on the workspace.

Convert the Image to Monochrome

In order to obtain the best tracing results, convert the image to monochrome.

5. Select the image.
6. Choose **Image** menu >> **Mode** >> **Monochrome** (Fig. 53).
7. The image will now be in monochrome format.

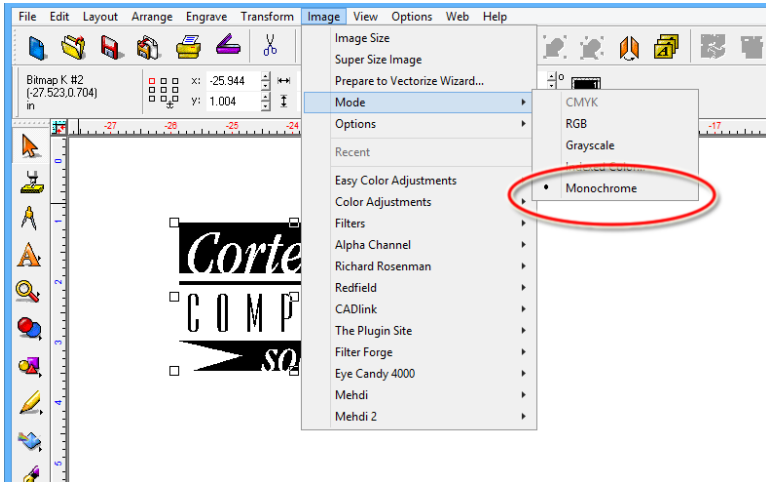

Fig. 53 - From the **Image** menu, the **Mode** flyout is used to change the type of image.

Tracing the Image with AccuScan

The monochrome image is now ready to be traced by AccuScan.

8. With the image selected, choose **AccuScan** from the **Scan Tools** flyout (Fig. 54).
9. The AccuScan controls will become available within the SmartBar.
10. In the SmartBar, the controls for **Vectorization, Trace Setup,** and **Saved Settings** are available (Fig. 55).
11. From the **Saved Settings** drop-list, choose "Small Serif Text".
12. To begin tracing the image, click the **Vectorization** button. Our sample image is relatively simple, so only a moment will be required to complete the tracing.

13. Once the image trace is complete, click the **Close** button to close AccuScan and return to the Select state. The trace is now grouped on the workspace.
14. Drag the bitmap aside, so that you can see the traced line art.
15. To see the tracings more clearly, toggle the **View** menu >> **Show Fill** command.

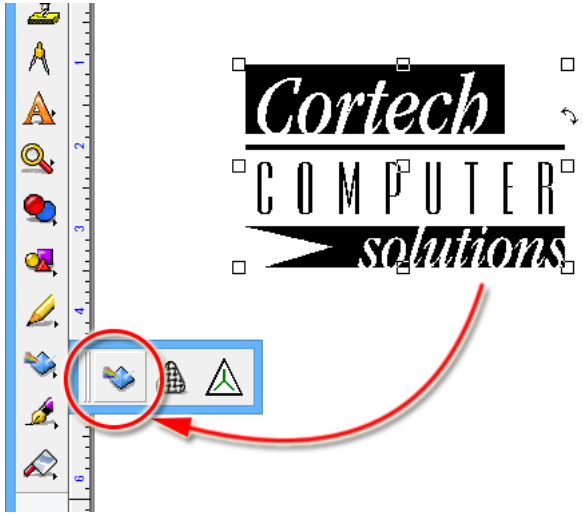

Fig. 54 - Select the image and choose **AccuScan.** Alternatively, double-clicking an image will activate AccuScan.

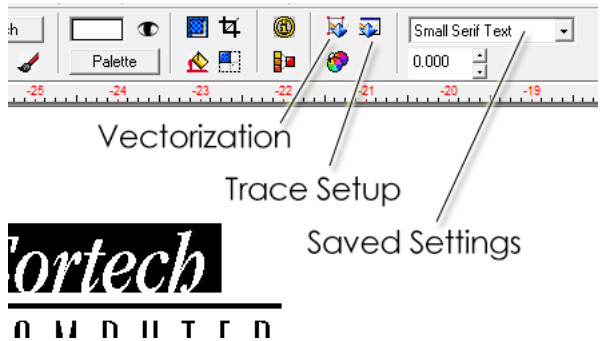

Fig. 55 - In AccuScan mode, the tracing tools will become available in the SmartBar.

Contour Fill Tool

From the **Transform** menu, the **Contour Fill** tool (Fig. 56) simulates a gradient effect by creating a sequence of consecutive cut paths. For a selected shape, there are two variants of this tool: **Exterior,** which creates a gradient that follows the outer contour, and **Interior,** which follows the inner contour.

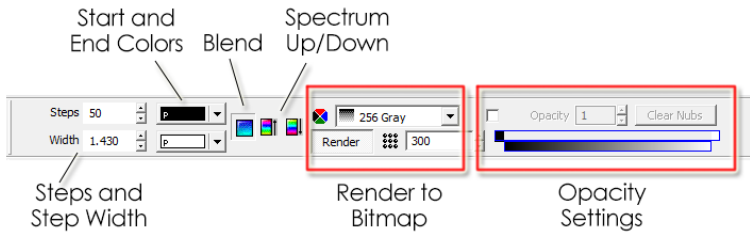

Fig. 56 - The SmartBar controls for Contour Fill.

Contour Fill Example

For laser engraving, a typical use of Contour Fill is to create a grayscale bitmap. The following steps describe how this would be done.

1. Select the vector artwork and choose **Transform** menu >> **Contour Fill** >> **Interior.**

   Note: The **Exterior** controls behave in a similar manner.

2. Using the color pickers, set the **Start** and **End** colors to black and white, respectively.

   To avoid potential mistakes, it is prudent to pick colors from the shop palette.

3. Set the number of steps, and the width of each step, to obtain the desired gradient effect. The settings here will depend upon the artwork size, and your judgment with respect to how fine the gradient should be.

   The on-screen handles are good for rough adjustments, and then specific settings can be made in the SmartBar.

4. Click the **Blend** option, so that the shades will be evenly distributed between the Start and End color.

   The **Spectrum Up/Down** controls are used to adjust how hues are blended either clockwise or counterclockwise through a HLS color wheel.

5. Click the **Render** button. This will activate the controls for rendering the resulting contour to a bitmap image, as opposed to a collection of discrete cut paths.
6. From the drop-list, choose **256 Gray** to indicate that the resulting bitmap should be a monochrome image.
7. Set the **Resolution** = 300 (i.e., a high resolution image).
8. For this example, the **Opacity** Settings are not needed, so we can leave those controls disabled.

   The **Opacity** controls are similar to that of the **Transparency Fill** tool (see help file).

9. Click **Close** to finish adjusting the contour fill settings (Fig. 57).

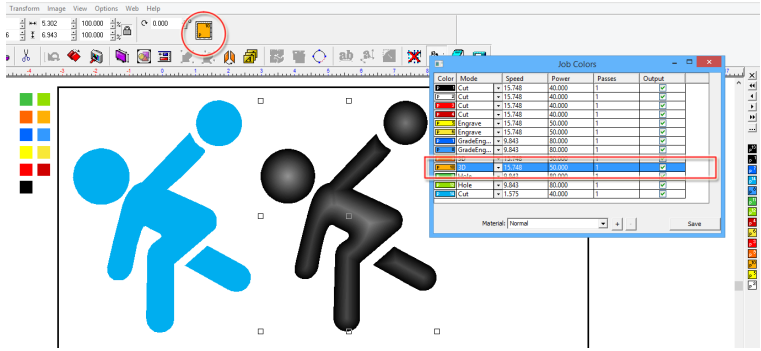

Fig. 57 - From left-to-right: original vector artwork, and the resulting grayscale bitmap.

Note: For engraving jobs that are sent via a printer driver, grayscale bitmaps should be set to a color that has a **3D** mode in the **Job Color** dialog.

Adding Cut Paths to Line Art

Suppose that a shape has an engraving fill, but you would also like to apply a cut path along its contour, or offset from its contour. This is done by creating a contour cut path, which is a new shape that will represent the cut path.

1. Select the shape, and choose **Engrave** menu >> **Contour Cut.**
2. At the far-left of the SmartBar, select the type of contour cut path that you want to create.
3. Tick **Inside/Outside** to cut both inner and outer contours. Otherwise, only the outer contours will be cut.
4. Set the **Corner Style** according to how rounded or sharp the cut paths should be (Fig. 58).

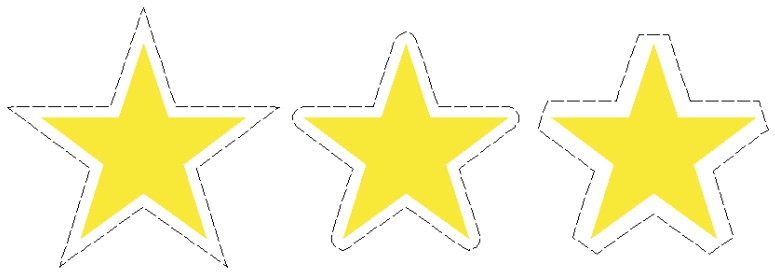

Fig. 58 - From left-to-right, the contour cut corner styles are corner, round, and mitre (50%)

5. Set the **Offset** according to how close the contour cut should follow the shape edge (Fig. 59).
6. If you selected the Miter corner style, then the **Miter Limit** field will appear.

   The **Miter Limit** is applied between the corners of the original object and the contour cut. This limit is expressed as a percentage of the **Offset** amount (Fig. 60).
7. The **Color Picker** is used to choose the fill color that defines the cut path.

   The color will default to a black color that has **Mode** = Cut. However, you should use the **Job Colors** dialog to confirm the cutting parameters of this color.
8. Click an empty portion of the workspace to finish editing the contour cut path.
9. The contour cut path will appear as a dashed line.

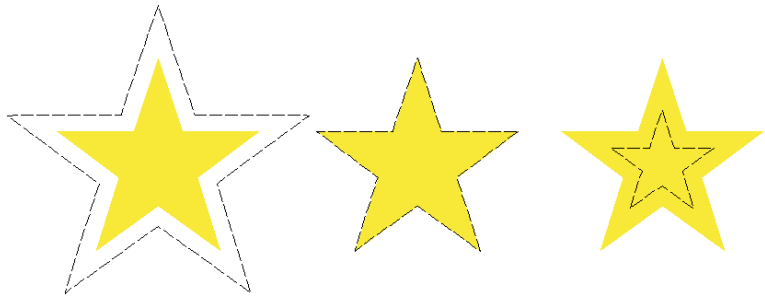

Fig. 59 - The **Offset** is the distance from the shape edge to the cut path. In the middle, the Offset is zero, whereas the left shape has a positive Offset, and the right shape has a negative Offset.

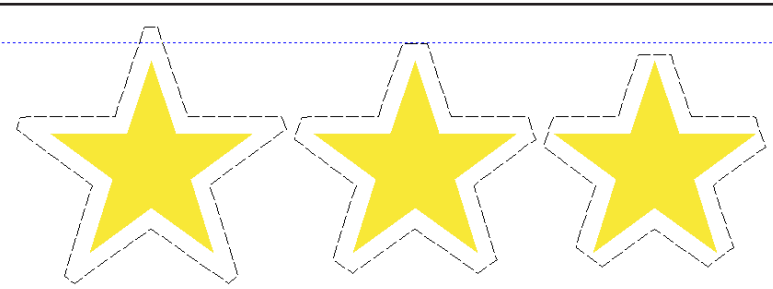

Fig. 60 - The **Miter Limit** causes corners to be trimmed according to a percentage of the Offset amount. From left-to-right, the percentage is 200%, 100%, and 0%.

Adding Cut Paths to Images

From the **Engrave** menu, the **Contour Cut** command is used to create cut paths for images in three ways (Fig. 61).

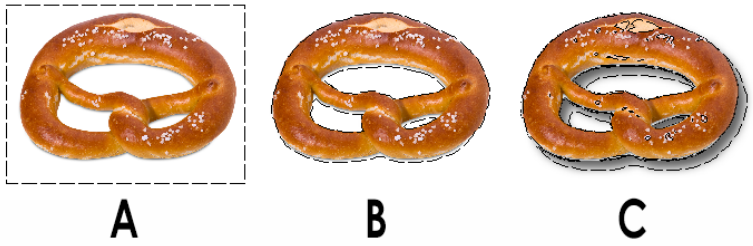

Fig. 61 - Examples of contour cut paths:

A) Create a rectangular cut line around the bounding area of the image.

B) Create an irregular cut line that traces the transition between white and dark portions of the image.

C) Create an irregular cut line that traces the transition along a specific grayscale value in the image.

1. Select the imported image that you want to add contour cut paths to.
2. From the **Engrave** menu, choose **Contour Cut** (Fig. 62).

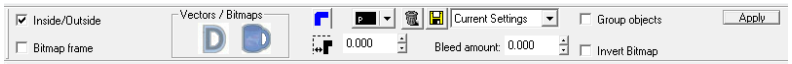

Fig. 62 - The SmartBar displays the **Contour Cut** controls.

3. At the far-left of the SmartBar are two checkboxes: **Inside/Outside** and Bitmap Frame. These checkboxes control how cut lines are created for an image. For example:

   To cut within the rectangular bounds of the image, the **Bitmap Frame** checkbox should be **OFF** (no tick).

   To create a cut lines that follow the contour of the image (i.e., inner contours), the **Inside/Outside** checkbox should be ON (ticked).

4. Set the **Corner Style** according to how rounded or sharp the cut paths should be.
5. Set the **Offset** according to how you want the cut lines spaced along the image contours.
6. The **Color Picker** is used to choose the fill color that defines the cut path.

   The color will default to a black color that has **Mode** = Cut. However, you should use the **Job Colors** dialog to confirm the cutting parameters of this color.

7. Click **Apply** to create contour cut paths for the image. If the **Bitmap Frame** checkbox = OFF, then the **Monochrome Filter** dialog will open (Fig. 64).
8. If the resulting contour cut path is acceptable, then click within an empty portion of the workspace to finish editing the contour cut paths.

Tips When Setting the Threshold Value

Creating a contour cut path involves tracing the edges of your original image. To do this, Vision 10 Software will (behind the scenes) analyze a monochrome (i.e. black-and-white) version of the image to determine its edges. In such a monochrome image, the pixels are either black or white, with white as the background (Fig. 63).

Fig. 63 - For an original image (on the left), a monochrome version will be temporarily created in order to determine the edges. To obtain sharper edges, it may be necessary to adjust the **Threshold** slider.

For your image, each pixel has a color weight that varies from zero (blackest) to 255 (lightest), which the **Monochrome Filter** dialog compares with the **Threshold** slider. By default, the **Threshold** slider is at the far-right, which indicates that only the lightest pixels should be white in the monochrome bitmap analysis. However, by moving the slider left, more of the lighter pixels will be considered as white, thereby adjusting the edge that will be traced.

To obtain the best results, it may be necessary to adjust the **Threshold** slider. The following are some tips:

To trace the contour of an image that has a white background, set the **Threshold** to 255 (move the slider all the way to the right).

To trace the contour of an image that has a shadow effect, set the **Threshold** somewhere around 200 (move the slider close to the right).

If the original image is monochrome, then the slider will not be adjustable.

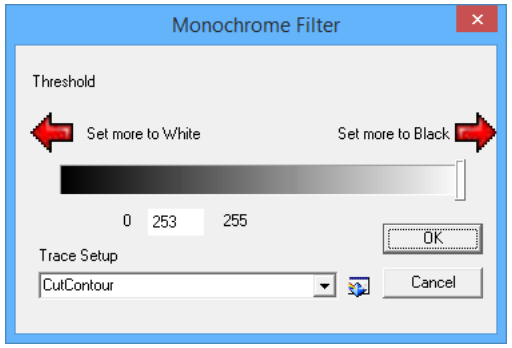

Fig. 64 - To obtain a clean cut line that follows the image contour, the **Monochrome Filter** dialog is used to force near-white hues to white.

Create a Plate Design

Use the following procedure to create a plate design with text that adjusts to the plate margins. In later sections, we will use this design to create both a series with single badges per plate, and a series with multiple badges per plate.

1. Choose **Layout** menu >> **Plate Size.**
2. Set the **Width** and **Height** according to your badge size.
3. Click **OK** to close the **Plate Size** dialog.
4. From the **Text Tools** flyout, choose **Frame Text Compose.**
5. The text controls will appear in the SmartBar (Fig. 65).

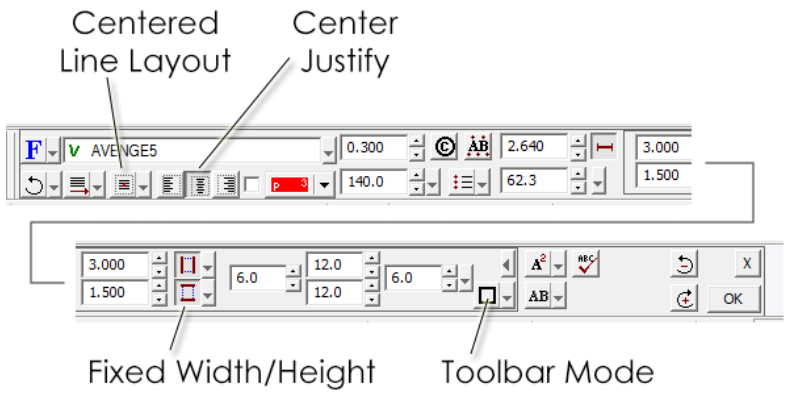

Fig. 65 - When composing text, the **Text Tool** controls will appear in the SmartBar. All text objects have a text frame, for which margins, justification, etc. can be customized. The **Toolbar Mode** is used to choose the available controls.

6. Click the **Center Justify** button.
7. For the **Line Layout**, click **Centered**.
8. For the **Toolbar Mode**, choose **Frame** to reveal the margin fields.
9. If necessary, click the **Fixed Width** and **Fixed Height** buttons, such that the margin fields are editable.
10. Set the margins to **Percent Margins**, and set each margin to a 6.0 value (Fig. 66).

11. Click the **Height Compression Mode** button to open the **Vertical Compression** dialog.
12. Click the "**Compress text only when height exceeded**" option.
13. From the **Method** drop-list, choose "Character height compression".
14. Click **OK** to close the **Vertical Compression** dialog.

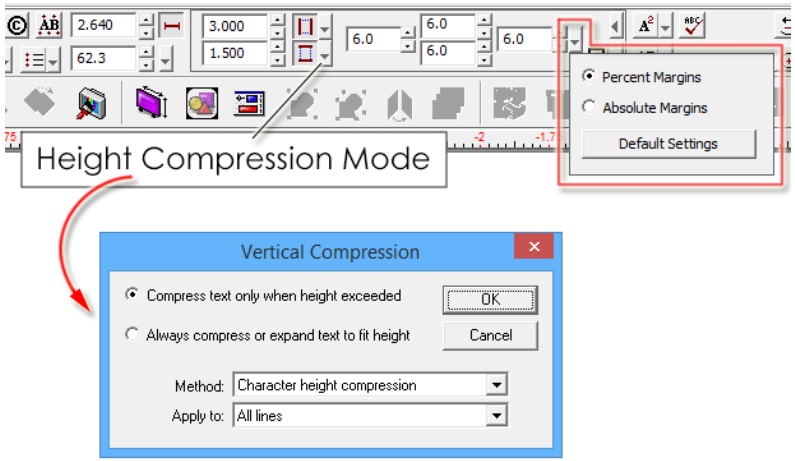

Fig. 66 - Adjusting the margins and compression settings tor a text field.

Create Text in the Text Frame

Now that the text frame margins and compression have been set, we can enter several lines of text. As new lines are added, text compression will be automatically applied. This text compression will also be applied when creating badges that have variable text.

15. When the **Vertical Compression** dialog was closed, the view returns to the text frame.
16. Type a line of text and press **[Enter]**.
17. Type a second line of text and press **[Enter].**
18. Type a third line (Fig. 67).
19. As each line is added, note how the character heights are automatically reduced to fit the text within the text frame.

    To increase emphasis on the first line, we selected the text and assigned a non-Italic font at a slightly larger text height.

    We also performed a small kerning adjustment to improve the overall presentation.
20. After completing any additional text edits that you would like, click an empty portion of the workspace to finish editing.

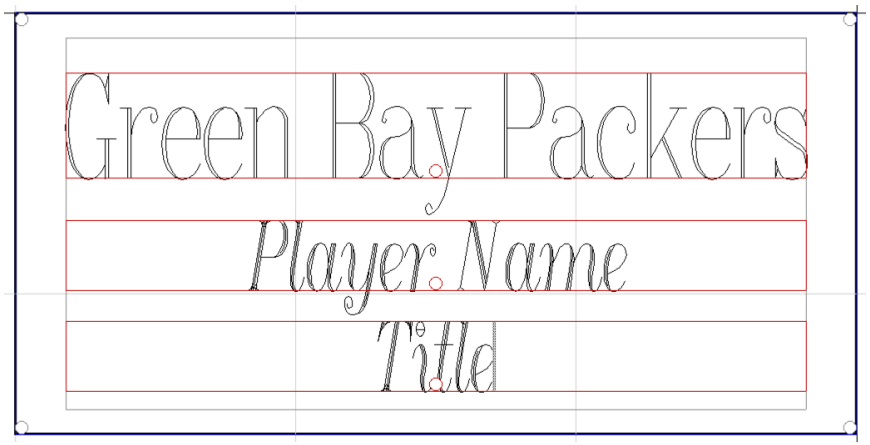

Fig. 67 - Three lines of text that fill the text frame. We will use this text when creating example badges in the following sections.

Preparing a Series of Single Plate Badges

Use the following procedure to prepare a series of badges, where only one badge will be cut at a time. Text substitution can be applied for each badge, such that the InstantReplay feature will automatically replicate any special effects that have been applied to the text, such as outlines, transformations, or shadows.

Note: If a plate design needs to be created, then please refer to "Create a Plate Design" on page 97.

Note: If a plate design needs to be imported from another design application, then please refer to "Importing from CorelDraw or Adobe Illustrator" on page 85.

Position the Initial Design

1. Confirm the placement of text and shapes, and apply the desired engraving operations.

Initial Badge Setup

2. Select all the elements of your plate design (Fig. 68). The objects selected will be replicated for each badge.
3. Choose **Layout** menu >> **Badges** to open the **Badge Setup** dialog (Fig. 69).
4. Tick the **Use Plate** checkbox to limit each badge to a single plate.
5. Next to the **Use Plate** checkbox, set the drop-list to **None**.
6. Clear the **Custom Size** checkbox, such that the **Height** and **Width** reset to the plate size.
7. The **Page preview** will be a single, white badge, as opposed to multiple badges arranged on a single plate.
8. Setting the **Margins** is unnecessary if you have already defined margins within the text field.
9. Set the Spacing (vertical and horizontal) to zero.
10. If present, clear the **Compress Equally Over Copies** checkbox (OFF).

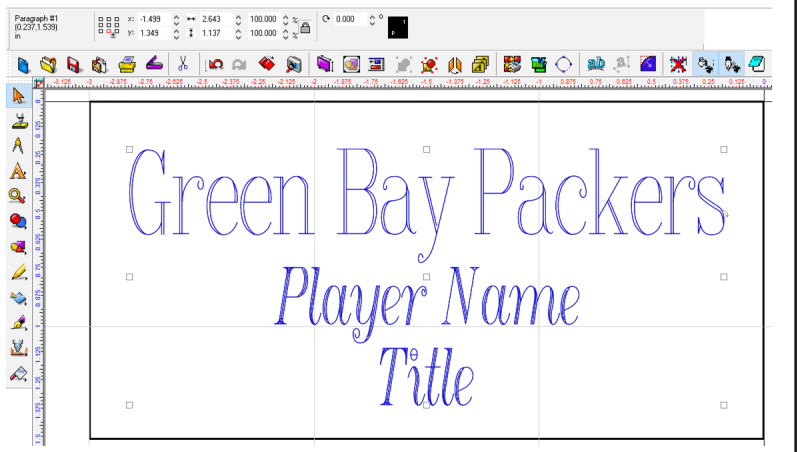

Fig. 68 - Since we will be cutting a single badge per plate, the text placement indicates where the plate will be cut.

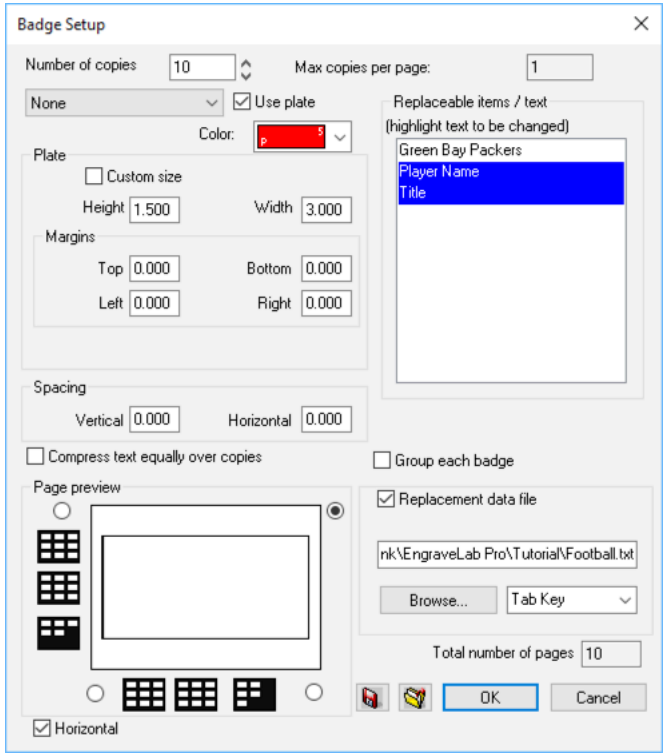

Fig. 69 - Use the **Badge Setup** dialog to set margins, spacing, and variable text for each badge.

Set Variable Text

For our example, we have a tab-delimited text file that contains text for substitution.

11. In the **Replaceable items / text** list (Fig. 70), click each item for which text replacement should be applied.

    The **[Ctrl]** and **[Shift]** modifier keys can be used when selecting from this list. Note that these items are listed according to the order in which they were created on the workspace.

12. Within the **Replacement data** file section, click the **Browse** button and choose the text file that contains your replacement text.

    This example uses the "Team.txt" file that is in the Vision 10 Software Tutorial directory.

13. When the text file is loaded, note that the number of badges is updated to reflect the number of data entries found within the file.

14. To the right of the **Browse** button, verify that the drop-list indicates the delimiter that is used in the text file. In this example, "Tab Key" indicates that the fields within the text file are separated by **[Tab]** characters.

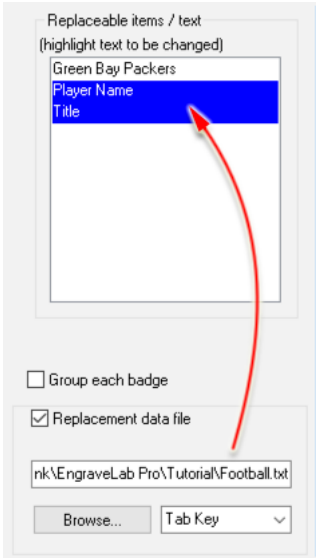

Fig. 70 - Choose a text file that contains replacement text, and select text fields for text substitution.

Text Substitution for Each Badge

15. Click **OK** to proceed to the **Text Substitution** dialog (Fig. 71).
16. All of the entries from the text file will now be listed.
17. Click **OK** to finish creating the badges.

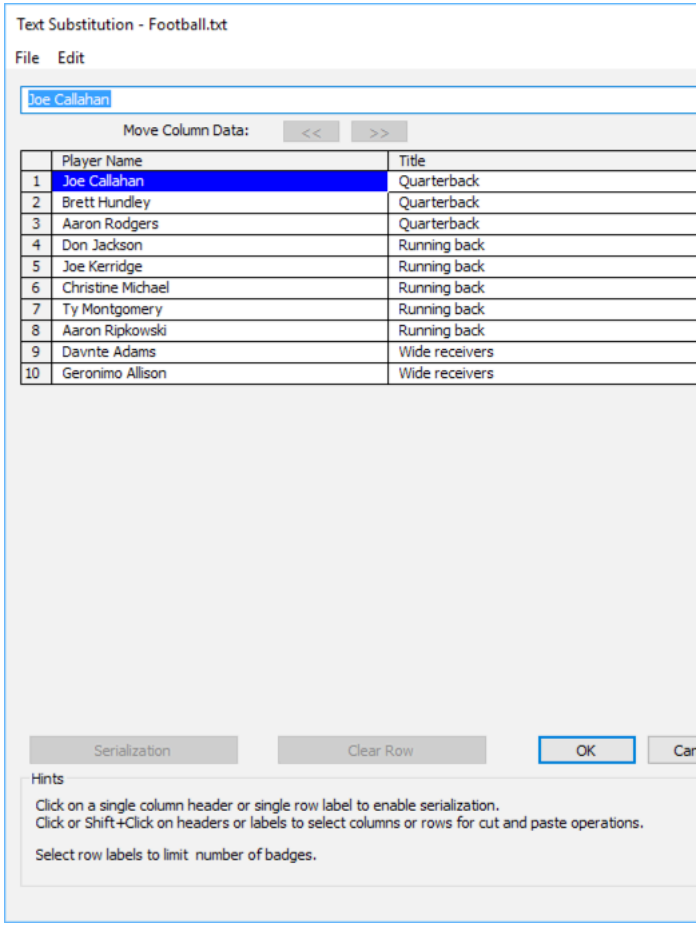

Fig. 71 - If imported data is in the wrong column, then click the column header to select that column, and then click the **Move Column Data** button.

The Finished Badges

18. When the badges have been completed, the workspace will display the first badge in the series (Fig. 72).

    Re-applying operations for text substitution is part of the **InstantReplay** functionality that is built into Vision 10 Software.

    Note that engraving operations have also been re-applied where there has been text substitution.

19. To view the remaining badges, use the **Sheet Page** palette at the bottom of the workspace (Fig. 73).

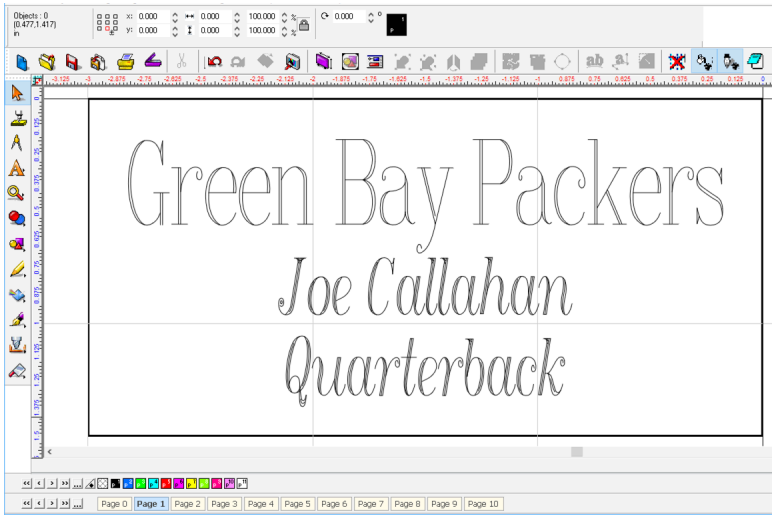

Fig. 72 - After badges have been created, the view will return to the workspace, where text substitution for each badge has been completed.

Fig. 73 - At the bottom of the workspace, use the **Sheet Page** palette to browse additional badges.

Creating Multiple Badges per Plate

Use the following procedure to prepare a series of badges, where multiple badges will be arranged on each plate. Text substitution can be applied for each badge, such that the **InstantReplay** feature will automatically replicate any special effects that have been applied to the text, such as outlines, transformations, or shadows.

Note: If a plate design needs to be created, then please refer to "Create a Plate Design" on page 97.

Note: If a plate design needs to be imported from another design application, then please refer to "Importing from CorelDraw or Adobe Illustrator" on page 85.

Position the Initial Design

1. When creating multiple badges per plate, the initial placement does not matter because the badges will be automatically positioned on the plate size.
2. However, do apply the desired engraving operations because these operations will be re-applied for all of the resulting badges.

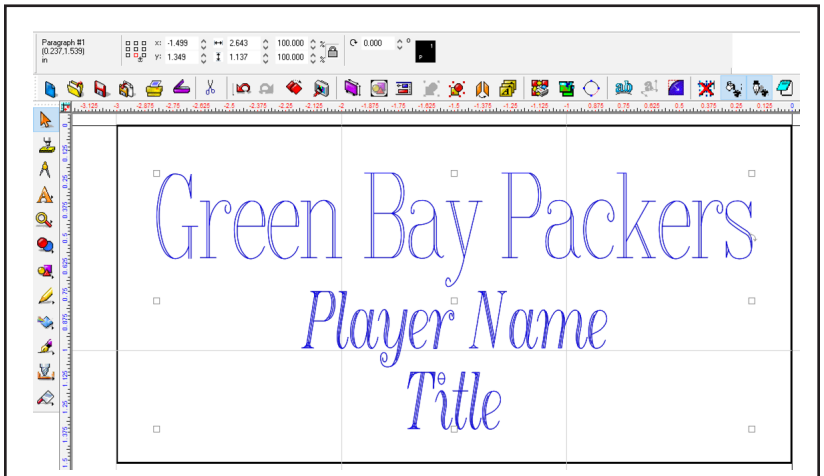

Fig. 74 - With multiples of this badge design being created per plate, we won't see the finished plate positions until after the badges are created.

Initial Badge Setup

3. Select all the elements of your plate design (Fig. 74). The objects selected will be replicated for each badge.
4. Choose **Layout** menu >> **Badges** to open the **Badge Setup** dialog (Fig. 75).
5. Clear the **Use Plate** checkbox, such that multiple badges can fit within a single plate.
6. Next to the **Use Plate** checkbox, choose **Score Lines** from the drop-list.
7. Use the color picker to choose an appropriate score line color.

   For laser engravers that use a printer driver, this color should have speed and intensity that will allow the badges to break cleanly.
8. Within the **Plate** section, tick the **Custom Size** checkbox and set the **Height** and **Width** according to the plate that has been loaded into the machine. For our example, this was 12" by 12".

   The **Page preview** will now show how the multiple badges will be positioned on the plate.
9. Setting the **Margins** is unnecessary if you have already defined margins within the text field.
10. Set the **Spacing** (vertical and horizontal) to zero.
11. If present, clear **Compress Equally Over Copies = OFF**

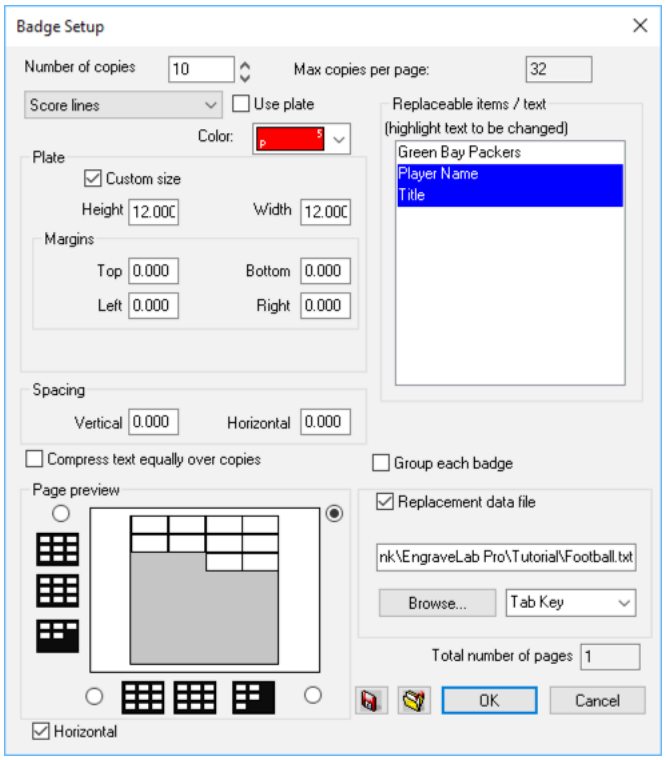

Fig. 75 - Use the **Badge Setup** dialog to set margins, spacing, and variable text for each badge.

Set Variable Text

12. For our example, we have a tab-delimited text file that contains country names and the name of their representative
13. In the **Replaceable items / text** list, click each item for which text replacement should be applied (Fig. 76).

    The **[Ctrl]** and **[Shift]** modifier keys can be used when selecting from this list. Note that these items are listed according to the order in which they were created on the workspace.
14. Within the **Replacement data file** section, click the **Browse** button and choose the text file that contains your replacement text.

    This example uses the "Team.txt" file that is in the Vision 10 Software Tutorial directory.
15. When the text file is loaded, note that the number of

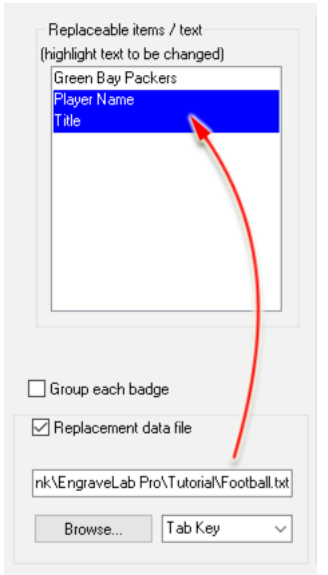

Fig. 76 - Choose a text file that contains replacement text, and select text fields for text substitution.

badges is updated to reflect the number of data entries found within the file.

16. To the right of the **Browse** button, verify that the drop-list indicates the delimiter that is used in the text file. In this example, "Tab Key" indicates that the fields within the text file are separated by **[Tab]** characters.

Text Substitution for Each Badge

17. Click **OK** to proceed to the **Text Substitution** dialog (Fig. 77).
18. All of the entries from the text file will now be listed.

    Along the bottom of the **Text Substitution** dialog, note the shortcuts that can be used to rearrange the columns.
19. Click **OK** to accept the **Text Substitution** fields, and Vision 10 Software will proceed to create the badges.

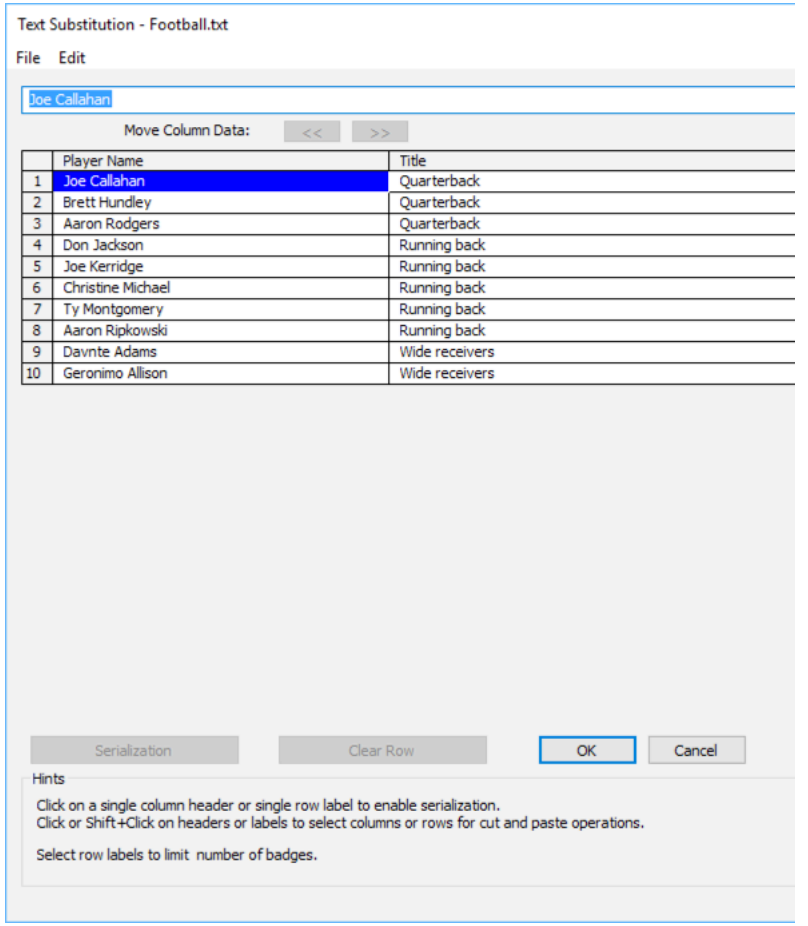

Fig. 77 - If imported data is in the wrong column, then click the column header to select that column, and then click the **Move Column Data** button.

The Finished Badges

20. When the badges have been completed, the workspace will display the first page of badges (Fig. 78).
21. To view the remaining pages of badges, use the **Sheet Page** palette at the bottom of the workspace (Fig. 79).

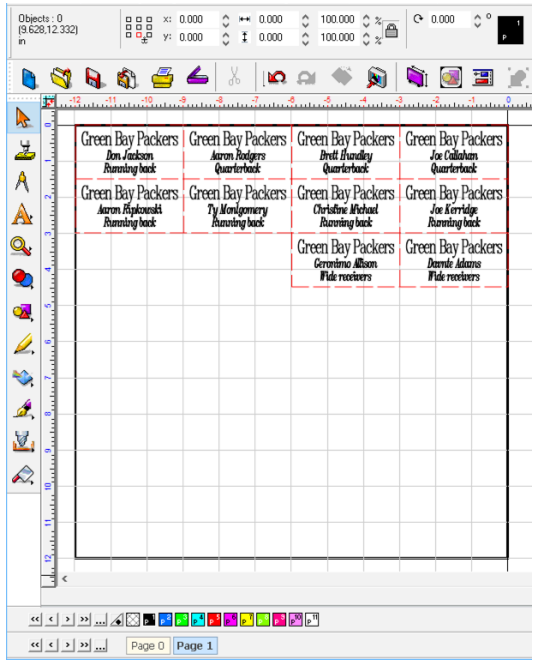

Fig. 78 - After badges have been created, the view will return to the workspace, where text substitution for each badge has been completed.

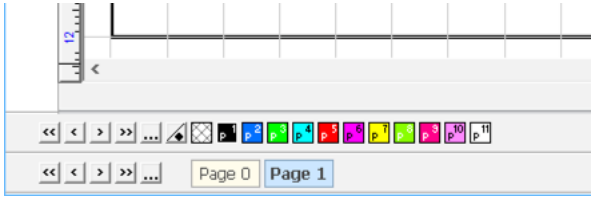

Fig. 79 - At the bottom of the workspace, use the **Sheet Page** palette to browse additional badges.

Adding Plate Objects to Badges

After multiple badges have been arranged for a sheet, any unused space can be filled with plate objects. The trick is that when creating the badges, they must be created as "plate objects."

1. Select the initial badge design and choose **Layout** menu >> **Badges.**
2. The **Badge Setup** dialog will open.
3. At the top-left, there is a drop-list for choosing the type of score lines or crop marks that will mark the bounds of each badge.
4. From the drop-list choose **Plate Object** (Fig. 80).
5. For the **Page preview**, click either the top-left, or bottom-left.

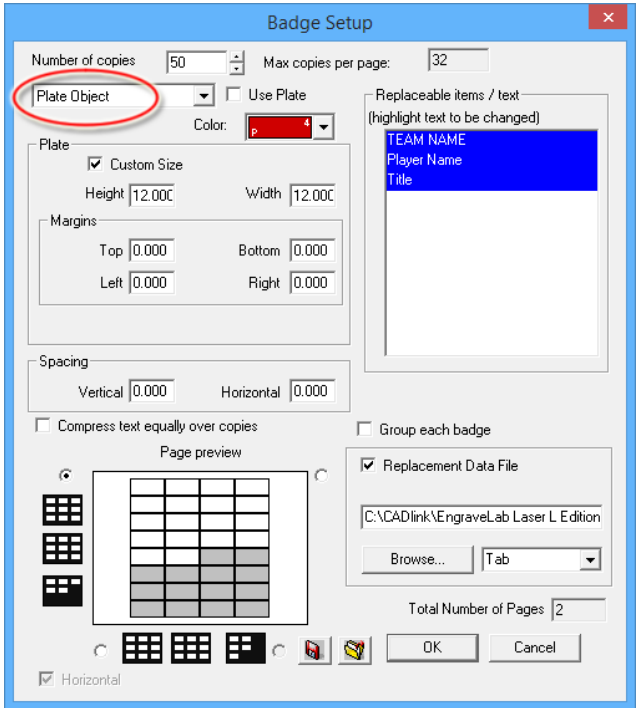

Fig. 80 - In order to add plate objects to badges, the badges themselves must be defined as "plate objects" in the **Badge Setup** dialog.

When badges are created as plate objects, they cannot be laid out from the top-right, or bottom-right.

6. Proceed with the remaining steps of your badge creation.
7. After badges have been created, suppose that the badges have filled several pages, but the final page is about half full.
8. Choose **Layout** menu >> **Plate Object** >> **Create Plate**.
9. In the SmartBar, set the **Width** and **Height** for the plate.
10. Click **Apply**, and the new plate will be appended within the available space of the last page (Fig. 81).

Adding Text to a Plate

To add text to a plate, first choose the Text Compose tool, and then click within the plate. The text frame will match the plate dimensions.

Creating More Plates

After creating a set of plates, there are two methods of adding more plates.

A) Select the set of plates, and then choose **Layout** >> **Plate Object** >> **Add Another Plate.**

B) Select the set of plates, and then press the **[Page Down]** key.

Conversely, plate objects can be removed by using either the **Remove Last Plate** command, or by pressing the **[Page Up]** key.

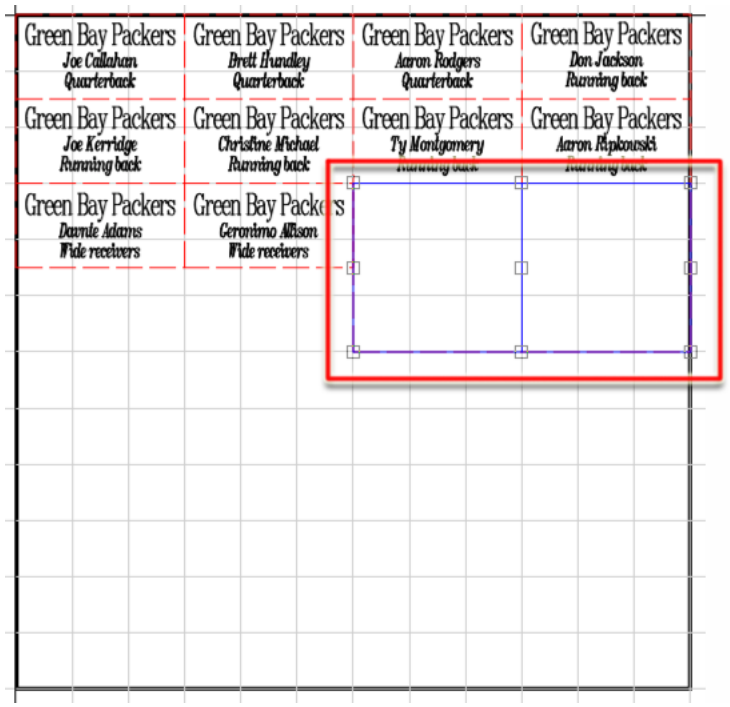

Fig. 81 - After creating badges that have been defined as "plate objects," additional plate objects will be placed within available space.

Photo Laser – Preparing an Image for Laser Engraving

The Photo Laser tool is used to prepare an image for output through a laser engraver. Various image filters are available for improving the quality of the image, and you can choose from preset settings that have been configured for different types of material. Since a laser engraver is essentially a monochrome device (laser on or laser off), any color information retained in the image is not useful, so the resulting photo laser image will be in monochrome format.

1. Import an image onto the Vision 10 Software workspace.
2. From the **Transform** menu, choose **Photo Laser** >> **Interactive.**
3. The Photo Laser dialog will preview the effect of applying the various filters (Fig. 82).
4. In the **Filter** list, right-click will toggle a filter between ON/OFF.

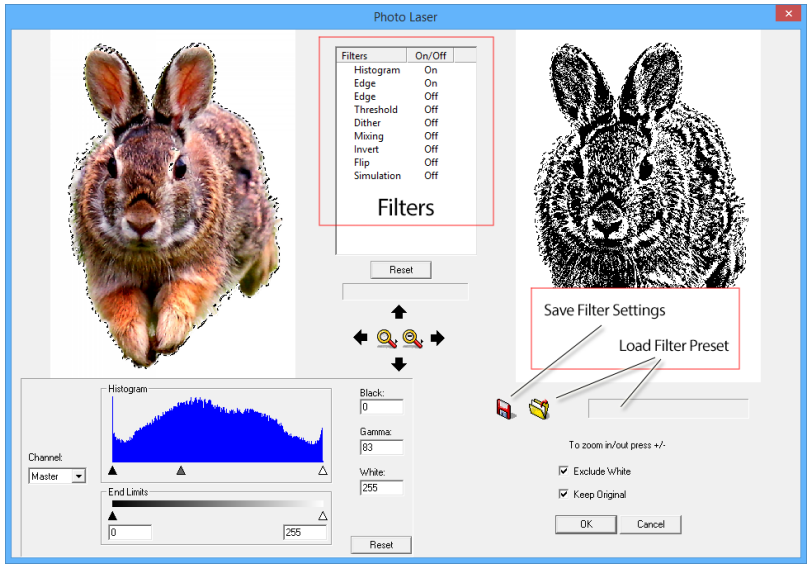

Fig. 82 - In the **On/Off** column, right-click to toggle a filter. When loading a filter preset, right-click the Simulation filter to simulate how the image appears upon that type of material.

Using Preset Filter Settings

Click the **Load Presets** button to choose from an assortment of parameter files that have been configured for various materials.

> **Note:** Presets typically include an additional background image for you to visually judge how your image will appear when engraved upon that material. Right-click the **Simulation** filter to view the background image.

Suggestions for adjusting filters from scratch

If you wish to adjust the Photo Laser settings without using preset values, then it is recommended that you start with only one filter, and then incrementally increase the number of filters until you achieve the desired results. For example:

- Right-click to turn **OFF** all the filters, except for the **Histogram** filter.
- Adjust the **Histogram** filter to trim excess shadow **(Black)** and excess highlight **(White).**
- If necessary, adjust the midtones **(Gamma)** to obtain more balance in the resulting shades.
- At this point, the image can be further refined by incrementally turning on more filters, one by one, and making adjustments as appropriate.
- For example, turn **ON** an **Edge** filter, set it to **Unsharp Mask,** and then adjust the **Amount, Radius** and **Threshold** to find values that produce good results.
- Then turn **ON** the **Threshold** filter and adjust the **Threshold** slider to help sharpen the image.

Output the Photo Laser Job

5. From the **Photo Laser** dialog, click **OK** to apply the filter settings (Fig. 83).

   If **Keep Original** = OFF, then the resulting image will replace the original.

   If **Keep Original** = ON, then the resulting image will be placed beside the original.

   If **Simulation** = ON, then an additional simulated image will be placed beside the other image(s), and it can be shown to the customer as a proof.

6. Before output, confirm that the image has been assigned a fill color that represents the desired engraving settings.
7. Choose **Engrave** menu >> **Output** to preview the job placement.
8. Confirm that the machine is online and loaded with the appropriate material.
9. From the **Cut Toolbox**, click **Engrave** to begin engraving.

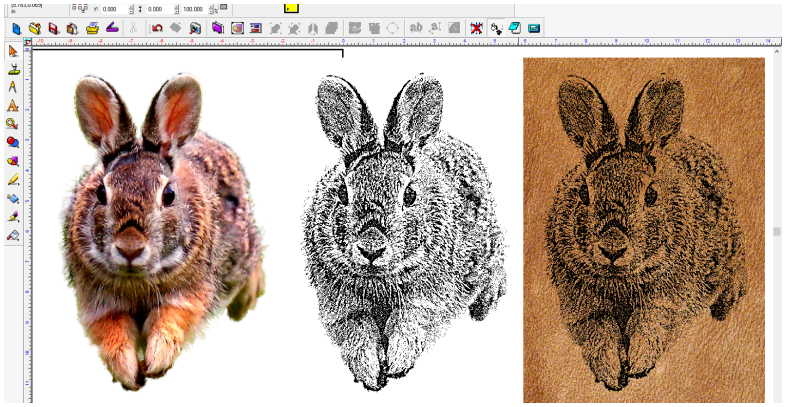

Fig. 83 - From left-to-right, the original image, the image that is ready for output, and a simulated image that can be shown to a customer as a proof.

Creating a Barcode

A barcode is an arrangement of vertical lines (of varying thickness and spacing) that form a machine-readable label. Depending on the type of barcode, the label can contain either numeric or alphanumeric data, which may then be scanned using a barcode reader.

There are a variety of barcode standards, each with their

specifications for barcode size, line thicknesses, and types of valid characters. Generally, the customer will specify the type of barcode and any additional constraints that you must adhere to.

Fortunately, Vision 10 Software will automatically constrain the data according to the type of barcode. For example, you will be prevented from entering illegal values. If you are not sure what the legal values are, then use the **Character picker.**

Barcodes can be combined with serialization from the badges feature, such that barcode values can be incremented automatically. Serialization will be demonstrated in the next section, *Creating Barcodes Using Badge Serialization.*

The following are the basic steps for creating a barcode:

1. From the **Shape Tools** flyout, choose **Barcode** (Fig. 84).
2. In the SmartBar, the barcode controls will become available (Fig. 85).
3. Set the **Type of barcode** according to the customer specifications.
4. In the **Value** field, enter the text and/or numeric values that will be converted into a barcode.

5. If there is an unusual character that must be entered in the **Value** field, then use the **Character picker** to choose characters that are valid for this type of barcode.
6. If a human-readable caption is required, then click the **Caption** button.
7. The other SmartBar controls will vary according to the type of barcode. To learn more about the barcode symbologies, please refer to the help file.
8. To create the barcode, click **Apply**, and then click on the workspace to place the barcode.

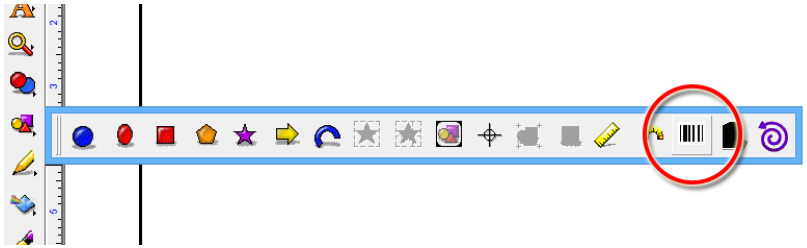

Fig. 84 - Create barcodes from the **Shape Tools** flyout.

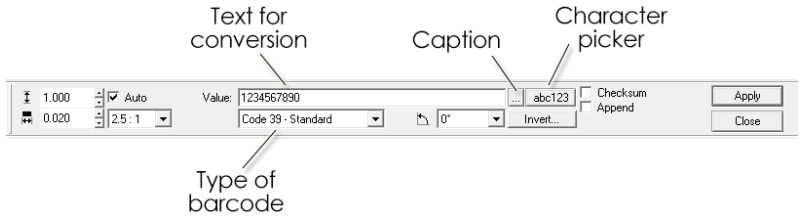

Fig. 85 - When creating a barcode, first choose the type of barcode (i.e., the symbology). The available controls and values will then be restricted to that type of barcode.

Creating Barcodes Using Badge Serialization

The Badges feature is used to create duplicates of a design, where new text can be substituted for each badge. For example, badges may be used to create nameplates for doors, identification cards for employees, or adhesive labels.

Often, text substitution is performed by reading names and related information from a text file that is provided by the customer. In addition, serialization can be used to increment a numeric or alphanumeric value for each badge. Likewise for badges that include barcodes, the barcode value can be incremented for each badge.

For the following steps, suppose that you have created a barcode and positioned it along with some supporting badge text. For simplicity, we will assume that only the barcode value is variable.

1. Choose **Layout** menu >> **Badges.**
2. In the **Badges Setup** dialog (Fig. 86), set the various control according to your production setup.
3. In the **Replaceable items / text** area, click the barcode value to indicate that it is selected.
4. Click **OK** to close the **Badges Setup** dialog.
5. The **Text Substitution** dialog will open (Fig. 87).

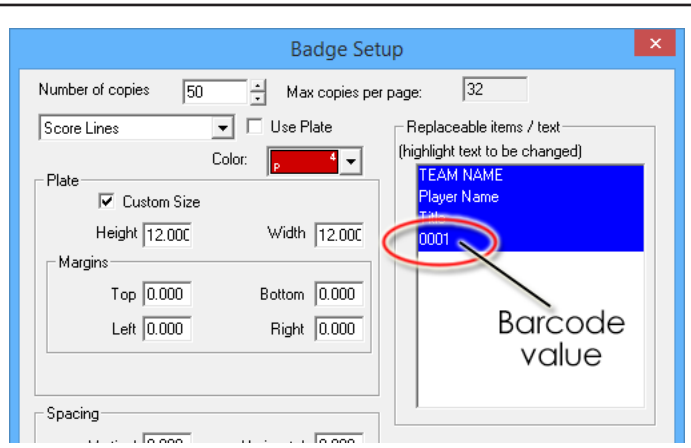

Fig. 86 - For this example, we want the barcode value to be variable, so the barcode value is selected.

6. The initial barcode value will be listed as a column header. Click this header to select the entire column.
7. Click the **Serialization** button.
8. The **Serialize** dialog (Fig. 88) will provide controls for setting the initial starting value and increments for the series.
9. In the **Start** field, highlight the characters that should be variable.
10. Click the **Set as Base** button, such that the highlighted characters will be variable.
11. Set the **Increment** = 1.
12. Set the **Base** = Number to indicate that the variable text is numeric.
13. Click **OK** to close the **Serialize** dialog.
14. Click **OK** to close the **Text Substitution** dialog.
15. The badges will now be created (Fig. 89).

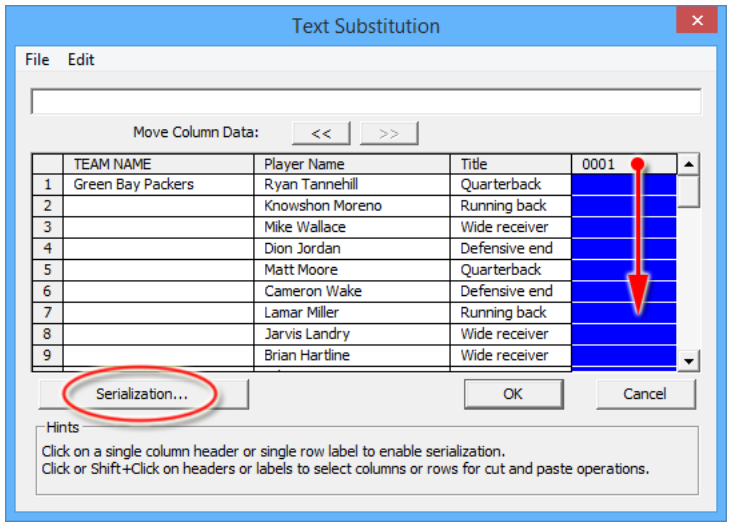

Fig. 87 - Click the header to select all the cells within that column, and then the **Serialization** button can be clicked to create a series.

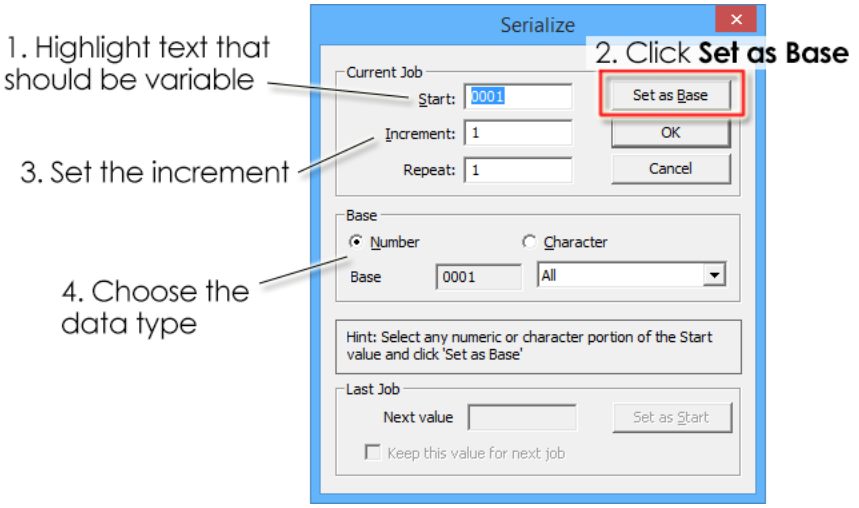

Fig. 88 - The **Serialize** dialog is used to choose the starting text that will be variable, and the amount that the value should increment for each badge.

Fig. 89 - The resulting badges have text substitution, and the barcode values are incremented for each badge.

Chapter 1

The Vision 10 Software Workspace

In This Section…

- Workspace customization
- Locations of menus, color palettes and toolbars
- Methods of creating shapes and text
- Selecting shapes and basic layout controls
- Setting fill and stroke colors
- Creating gradient fills and color blends

The center of the Vision 10 Software environment is the workspace, which includes grid lines, horizontal and vertical rulers, and a rectangular outline to represent the plate size.

The **plate size** dimensions are usually set equal to the material that is being machined, such that the placement of art and text can be visualized. However, for some design work it may be more convenient to hide the plate size.

Quick Customization Tips

Depending on the other software packages that you are familiar with, you may have certain preferences for how the workspace is set up. The following are some of the Vision 10 Software workspace settings that may be of immediate use to you:

- **Options** menu >> **Vision 10 Setup** >> **General Preferences** – Set the basic workspace settings that are generally common to all features
- **Options** menu >> **Vision 10 Setup** >> **System Preferences** – Configure basic product functionality, usually as a one-time configuration
- **View** menu >> **Show Plate** – This is used to turn on the rectangular area that helps you visualize the size of the material that you are working on
- **View** menu >> **Show Fill** – This is used to show the fill color of line art shapes. Turn this off to see only the wireframe view of shapes

- **View** menu >> **Show Bitmap Outlines** – This is used to show only a wireframe rectangle of bitmap shapes
- **View** menu >> **Link Show Fill and Bitmap Outlines** – When Show Fill is toggled, also causes wire frames to be shown instead of bitmap image.
- **View** menu >> **Show Tool Diameter** – Illustrate the widths that tool paths require
- **View** menu >> **Show Grid** – This is used to display the grid lines
- **Options** menu >> **Grid** – This is where objects can be set to snap to the grid lines
- **Options** menu >> **Guides** – This is where guidelines can be created or removed

Menu, SmartBar, and Toolbars

Above the workspace is the menu bar, the SmartBar, and one-or-more toolbars.

- The **menu bar** is typical of most Windows applications.
- The **SmartBar** is a special, dynamic toolbar that displays controls that are specific to the current operation that is being edited.
- The other **toolbars** are customizable. Buttons may be added or removed from these toolbars. New toolbars may also be created.

Color Palettes

Below the workspace are the color palettes.

- The **Shop Palette** is the main color palette that displays colors that are available for use as either fill or stroke colors.
- The **Sheet Page Palette** is used to manage multiple pages, such as created by the Badges feature, or when importing multiple page PDF documents.

See also: "Color Palette Tips" on page 216

Shape Creation

From the **Tools** toolbar, the **Shape Tools** (Fig. 90) are used to create circles, rectangles, polygons, stars, arrows, and fan shapes. These shapes are sometimes referred to as "parametric shapes" because they have extra editing handles for adjusting the shape parameters, such as number of sides, notched corners, rounding, etc.

From the **Tools** toolbar, the **Graphic Edit Tools** (Fig. 91) are used to edit scanned or imported vector artwork. Often, scanned artwork has extra nodes and rough edges that need to be "cleaned up" using these node editing tools. In addition, the **Graphic Edit Tools** can be used to draw freehand shapes and trace simple artwork.

See also: "Polygon Editing Hot Keys" on page 213

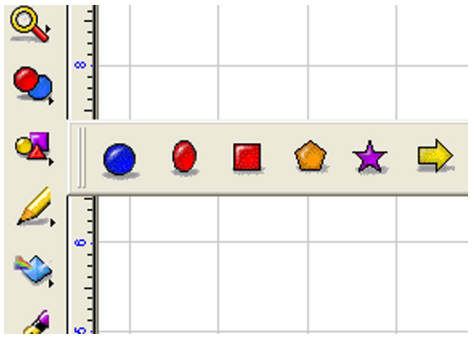

Fig. 90 - Basic shapes that are available from the Shape Tools flyout.

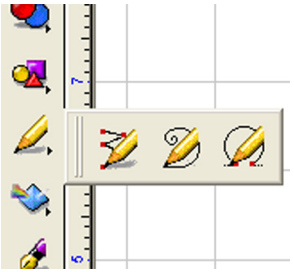

Fig. 91 - Node editing is available from the Graphics Edit Tools flyout.

Removing excess nodes when node editing

1. From the Shape Tools flyout, create an oval shape.
2. Select the oval and choose **Arrange** menu >> **Convert to Polygon.**
3. Double-click the oval to begin node editing.
4. Drag a marquee to select all of the nodes.
5. Press the ' u ' key to select only alternate nodes.
6. Press the **[DEL]** key.

From the **Tools** toolbar, the **Slice Tools** (Fig. 92) are used to subdivide selected shapes. The **Open Path** tool will leave the subdivided objects as open paths, whereas the **Close Path** tool will create closed paths.

When either **Open Path** or **Close Path** is chosen, click on the workspace to place one-or-more cutting nodes that intersect the selection. Then click **Apply** to subdivide the selection.

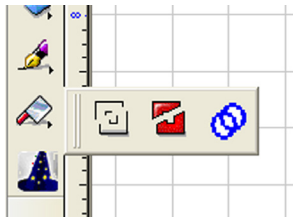

Fig. 92 - Subdivide shapes using the **Slice Tools** flyout.

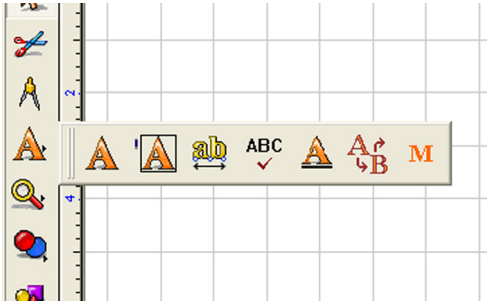

Fig. 93 - **Text Compose** is available from the **Text Tools** flyout.

Text Creation

From the **Text Tools** flyout (Fig. 93), the **Text Compose** tool is used to create text shapes. When creating text, the text frame determines the bounds of the text, such as the following:

- **Click on workspace:** This will set an entry point for the text. As text is typed, the text frame will expand and contract to enclose the text.
- **Click along a shape contour:** Hold the cursor over the edge of a shape, such that the cursor turns black. Click and type text to fit text to the shape contour.
- **Click and drag marquee:** Dragging a marquee with the mouse will set the text frame bounds. As text is typed, the text frame will remain fixed, and the text will be constrained according to the text frame properties.
- **Press [Ctrl] and click along a shape contour:** This will activate the Fit Text to Frame feature, where text can be fit to irregular non-rectangular shapes.
- **Press [Shift] and click on workspace:** This will set the text frame equal in size to the plate size.
- **Frame Text Compose button:** This button will set the text frame equal to the plate size.

The **Spell Check** tool will check the spelling for all text shapes.

The **Text Underline** tool will create underlined text. Right click to set the underline properties.

From the **Transform** menu, the **Fit Text to Arc** command is used to fit the text to a circular contour.

From the **Transform** menu, the **Fit Text to Path** command is used to fit the text shape to the contour of another shape.

From the **Transform** menu, the **Fit Text to Frame** command will cause text to fit within another shape, such as an irregular non-rectangular shape.

From the **Weld** Tools flyout (Fig. 94), the **Basic Weld** is used to bond script lettering, such that there is no overlap between adjacent characters.

However, keep in mind that the result of the weld will no longer be a text shape, so make sure that the text is correct before doing the weld.

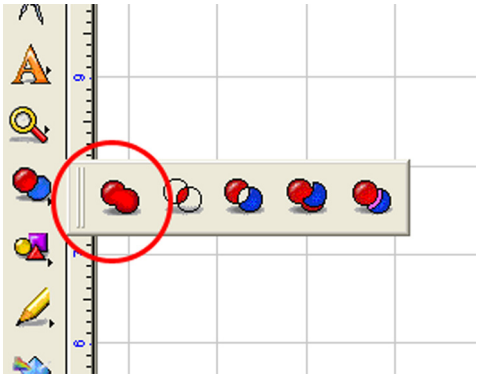

Fig. 94 - For script lettering, kern the lettering and then use the **Basic Weld** tool.

Selecting Shapes

See also: "Selecting and Manipulating Shapes" on page 217

Left-click a shape to select it. The **[Shift]** key can be used to add/remove shapes with respect to the current selection.

To select multiple shapes, click-and-drag the cursor to form a marquee. All shapes that are within the marquee will be selected. Alternatively, use the **Lasso Selection** tool **[Shift + Ctrl + a]** to draw an irregular shaped marquee. All shapes that are within the marquee will be selected.

If the **[Ctrl]** key is pressed when dragging a marquee, then all shapes that are overlapped by the marquee will be selected.

By default, a shape can be selected by clicking within its filled region. Alternatively, press the **[ALT]** key to only allow a shape to be selected by clicking along its contour. This is useful when you are attempting to select from among several clustered shapes. For example, when node editing a shape that overlaps other shapes, press the **[ALT]** key to prevent accidentally choosing a different shape.

Vision 10 Software can be set to select shapes only when they are clicked along their contours. From the **Options** menu, choose **Vision 10 Setup** >> **General Preferences** >> **Selection Tool Settings**. If the "**Use Filled Region to Select**" option is unchecked, then shapes can only be selected by clicking along their contours.

Job Palette Color Selection

The **Job Palette** may be used to select shapes according to their color.

Select all shapes of a specific color or tint

1. In the Job Palette, click [...] and choose **Color View** from the context menu.
2. Press **[Shift]** and then left-click a color in the Job Palette.
3. All shapes of that color will be selected.

Select all shapes of a specific spot color

1. In the Job Palette, click [...] and choose **Foil View** from the context menu.
2. Press **[Shift]** and then left-click a color in the Job Palette.

3. All shapes of that spot color will be selected, including tints of that color.

Properties of Shapes

When a shape is selected, nine editing nubs appear about the shape. These nubs are used to move, resize, scale, flip, and rotate the shape. The SmartBar displays the position, size, rotation, color information, and type of the shape.

Of the nine editing nubs, the SmartBar indicates the **Current Nub** with a red highlight, and the SmartBar x and y values represent the position of the Current Nub. When the SmartBar is used to resize a shape, the shape will be resized with respect to the Current Nub.

Of the nine nubs indicated within the Current Nub, there is a tenth **Anchor Nub**. The Anchor Nub is like a variable nub that can be repositioned over the selected shape.

From the **View** menu, the **Show InstantReplay** item will activate the InstantReplay window, which is used to list the changes (properties and operations) that have been applied to a shape. Double-clicking will edit the property or operation without changing the order in which it was applied. Pressing the **[Delete]** key will reverse changes to a selected property, and it will remove a selected operation.

Using the cursor keys, a shape is moved ("Nudged") one pixel at a time. Holding **[Shift]** will move the shape by five pixels.

When rotating a shape, press **[Ctrl]** to constrain rotation to the Snap Angle, which is set on the General Preferences dialog.

When dragging a shape, press **[Ctrl]** to constrain the move horizontally or vertically. In addition, pressing **[ALT]** will create a duplicate of the moved shape.

From the **Layout** menu, the **Size/Move** commands are also used to modify the shape properties, as follows:

Layout Menu Size/Move Commands

- **Size:** Set width and height of shape, or set scaling amount.
- **Move:** Place shape at an absolute position, or move the shape by a relative amount.
- **Slant:** Slope or skew the shape either horizontally or vertically.
- **Rotate:** Rotation can be with respect to a specific point on the workspace.

- **Mirror:** Flip the shape either horizontally or vertically.
- **Flip:** Similar to mirror, except that the line of reflection can be adjusted.
- **Clear Size/Move:** Remove all Size, Move, Slant, Rotate, Mirror, or Flip operations that have been applied to the shape.

Adding Fills and Strokes

The Shop Palette contains the colors that can be applied to shapes as fill or stroke colors. In addition, the Job Palette will list all colors that are currently being used on the workspace.

For a selected shape, left-clicking a Shop Palette color will change the fill color, and right-clicking will change the stroke color. The Shop Palette also has a **Line/Fill** button, which is used to alternate this behavior.

When there is no selection, the SmartBar indicates the default fill and stroke colors that are applied to new shapes. Within the Shop Palette, a white hairline is drawn about the default fill color.

A newly created shape has no stroke, so its stroke color is not initially visible. From the **Stroke and Fill Tools** flyout, the **Line Style** tool is used to add a stroke.

At the far-left of the Shop Palette is the **Invisible Color**. All other colors have a letter designation (P, SF, or SC) to indicate their type.

Types of Colors

- **Invisible Color:** Indicates the absence of color. For example, when a shape fill is Invisible, only its thick line attributes (i.e., its stroke) are available for printing or cutting.
- **Process (P):** Use the Process option when process colors are being used (i.e., where CMYK colorants are combined to produce a given color).
- **Spot Foil (SF):** Used to represent colors that will be printed with foil cartridges (i.e., pure colorants are applied, rather than by combining proportions of CMYK). Shades of spot foils are created by adjusting the Tint values (less than 100%), or by applying a gradient.
- **Spot Color (SC):** Defined in terms of the LAB color space, and used to represent distinct color planes when printing color separations.

Gradients and Pattern Fills

From the **Stroke and Fill Tools** flyout (Fig. 95), the **Gradient Fill** tool is used to create a process color gradient. When printed, this fill will be rendered using CMYK colorants.

From the **Stroke and Fill Tools** flyout, the **Pattern Fill** tool is used to tile a bitmap pattern on the shape.

From the **Stroke and Fill Tools** flyout, the **Transparency Fill** tool behaves like the gradient fill tool, except that object opacity is adjusted instead of color.

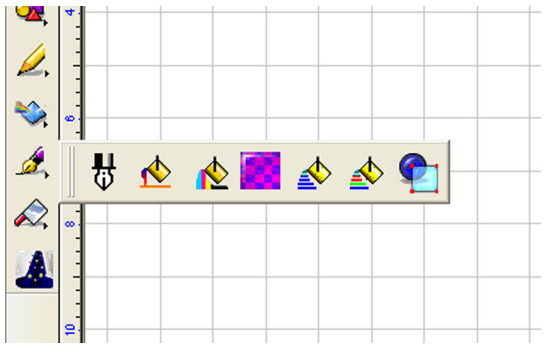

Fig. 95 - Apply gradient fills and patterns from the **Stroke and Fill Tools** flyout.

Blends using Metamorphosis

From the **Transform** menu, one of the functions of the **Metamorphosis** tool is to create a smooth gradient blend between two line art shapes. Depending on the metamorphosis setting, either new colors can be created, or existing Shop Palette colors will be used.

- **Target layer:** Use the currently selected Shop Palette color
- **Match layers:** Locate and use only colors that are currently in the Shop Palette
- **New layers:** Create and add new colors to Shop Palette

Metamorphosis creates the effect of a gradient blend by creating a large number of intermediate shapes. For example:

Create a metamorphosis color blend

1. Create some blue text with 1" height.
2. Create a red duplicate of the text with 5" height.
3. Select both text shapes and choose **Metamorphosis** from the **Transform** menu.
4. Set the **Mode** to **New Layers**, such that new color plates will be created.
5. Set a high **Count** value, such as 64.
6. Click **OK,** and the resulting series of line art shapes will create the effect of a gradient.

To create a blend that fades to "no color," then assign the **Invisible Color** to one of the shape fills.

Chapter 2

Shape Manipulation

In This Section…

- Arranging collections of shapes
- Applying special effects to shapes
- Clipping intersecting shapes
- Dissecting shapes with the Slice Tools
- Converting text shapes into line art

There are many tools available that allow you to modify or combine shapes.

From the **View** menu, choose **Layer Viewer** to display how shapes are arranged upon each layer. Shapes on a higher layer will appear above shapes on a lower layer.

Ways to use the Layer Viewer

1. Drag a shape to either above or below another shape, or drag a shape onto a different layer.
2. For a selected shape, click the **Show Object Attributes** button to display the operations and attributes of that shape, which can then be double-clicked to edit.
3. For a selected layer, click the **Show Layer** button to toggle the visibility of that layer. Similarly, you can lock layers, or set them to be either print-only or cut-only.

From the **Arrange** menu, the **Order To Front** and **Order To Back** commands are used to control the display order in how shapes appear above each other. Similarly, shapes can be moved **Forward** and **Backward** in the display order.

From the **Layout** menu, the **Group** command is used to bind shapes into collections, which allows the shapes to be moved as a single unit. The **Ungroup** command is used to release the collection.

Double-clicking a group of shapes will open the **Group Viewer,** which lists the shapes that are part of that group. Selecting a shape within the **Group Viewer** will display all the attributes and operations that have been applied to that shape.

Ways to use the Group Viewer

1. Double-click an attribute for one of the shapes within the group. Changes to that attribute will only apply to that shape without changing the group.
2. Drag a color from the Shop Palette, and drop it onto the "Layer" attribute within the **Group Viewer.** The fill color of the shape will be changed.
3. Select a shape that is not part of the group, and use **InstantReplay** (see InstantReplay) to look at the operations that have been applied to that shape. Drag an operation from the **InstantReplay** window, and drop it into the list of operations displayed within the **Group Viewer**. The operation will be automatically re-applied to the shape that is selected within the **Group Viewer.**

From the **Tools** toolbar, the **Weld Tools** are used to fuse shapes together into a combined shape. Alternatively, the weld tools can clip overlapping shapes. In either case, the weld tools actually create new shapes.

From the **Arrange** menu, the **Clipping** command is used to clip overlapping shapes to the top-most shape. This is similar to a weld, except that the original shapes are not destroyed, and the **Clipping Clear** command can be used to reverse the effect.

From the **Tools** toolbar, the **Slice** Tools are used to subdivide shapes. The subdivided shapes can either become closed contours, or they can be left as open paths.

From the **Arrange** menu, the **Text to Graphics** command is used to convert text shapes into line art. This is usually done in order to combine the text shapes with other line art.

Outlines and Inlines

From the **Transform** menu, the **Outline** command is used to add the effect of contour lines either around a shape (Outline), or within the shape contour (Inline). The **Create Mask** option will weld the resulting outlines and/or inlines into a single shape.

From the **Transform** menu, the **Contour Object** command is similar to the **Outline** command. A positive **Offset** will create an outline, whereas a negative **Offset** will create an inline. Overlapping portions of the contour object will be automatically welded into a single shape.

Transformation

From the **Transform** menu, the **Transformation** command is used to apply special effects and distortions to shapes and/or images. Each transform comes with two versions: Vertical and Horizontal (Fig. 96).

Note: The following three transformations are not available when editing images: **Perspective Curve Vertical,** and neither of the **Fit to Circle** transforms.

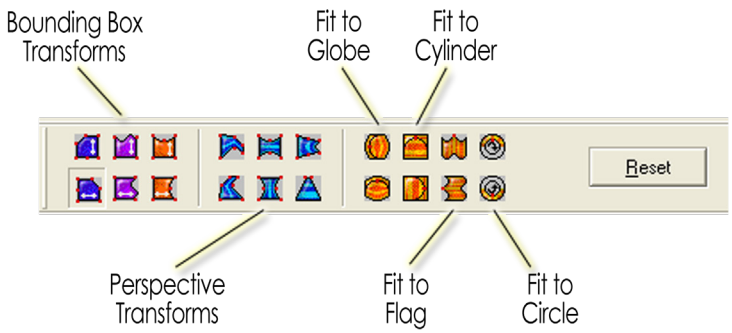

Fig. 96 - There are six categories of **Transformation** commands available, all but three of which can also be applied to images.

Metamorphosis

From the **Transform** menu, the **Metamorphosis** command is used to blend two shapes together, and multiple intervening shapes with distinct gradients can be created.

Shadow

From the **Transform** menu, the **Shadow** command is used to add background shapes that create the appearance of shadows (Fig. 97).

- **Block Shadow**: The Block Shadow is used to give shapes the perception of depth.
- **Perspective Shadow:** The Perspective Shadow is used to give shapes the perception of distance.
- **Drop Shadow:** The Drop Shadow is similar to the Block Shadow, though the perceived space between the original shapes and their shadows is not filled.
- **Cast Shadow:** The Cast Shadow is used to create the perception of a light source, such that the shapes project a shadow as if onto a nearby surface.

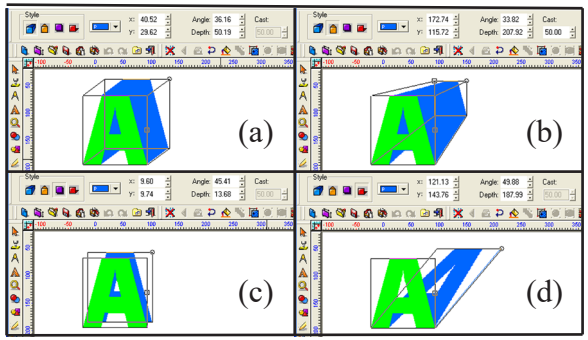

Fig. 97 - The available **Shadow** styles are (a) Block Shadow, (b) Perspective Shadow, (c) Drop Shadow, and (d) Cast Shadow.

At the far-right of the Shadow SmartBar, the Outline checkbox (Fig. 98) is used to increase the thickness of the shadow effect. When creating a shadow outline, the following outline options may be used:

- **Point:** Corners of the shadow outline are sharp
- **Miter:** Corners of shadow outline are clipped (See "Miter Limit" on page 139)
- **Round:** Corners of the shadow outline are rounded and smooth
- **Relief Shadow:** Create a gap (equal to the Thickness setting) between the shape and the shadow outline

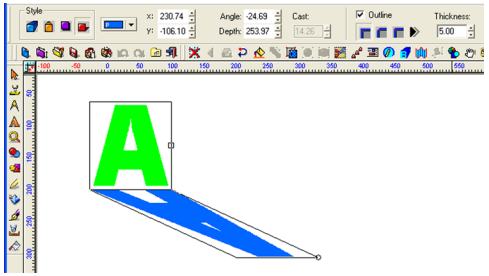

Fig. 98 - As an option, tick the **Outline** checkbox and increase the shadow thickness.

Miter Limit

For outlines and shadows, the Miter Limit is the percentage at which corners will be clipped (Fig. 99). The miter limit is calculated as a percentage of the outline or shadow thickness.

Only corners that are less than or equal to 90 degrees will be clipped.

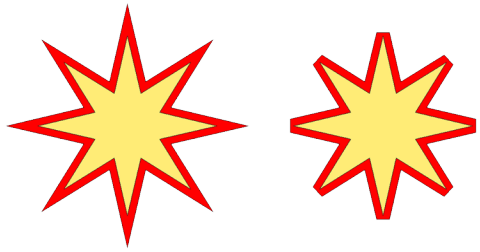

Fig. 99 - Two star shapes with outlines. The second star has an outline that has been clipped at 70%.

Decorative Border

The **Decorative Border** tool is used to create a border shape that encloses either the plate size or selected shapes. The **Decorative Border** tool (Fig. 100) is available from both the **Shape Tools** flyout, and the Layout menu.

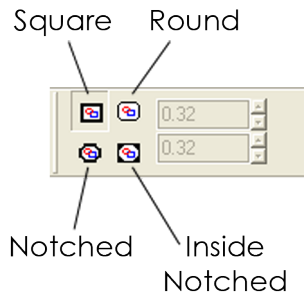

Fig. 100 - **Decorative Border** styles available from the SmartBar.

Round Corners

From the **Transform** menu, the **Round Corner** tool is used to create rounded corners for either inside or outside contours of vector shapes.

Most of the parametric shape tools include extra controls for rounding corners. However, the **Round Corner** tool is useful for scanned or imported vector shapes that would otherwise require node editing to create the rounded corners.

Stencils

From the **Shape Tools** flyout, the **Stencil** tool (Fig. 101) is used to create the appearance of work that has been designed using a stencil pattern. Other shapes will be visible beneath the stencil shape.

A common stencil technique is to duplicate the shape, apply a different fill color, and then apply a stencil to the duplicate.

Creating a striped stencil pattern

1. Create a shape and apply a red fill color.
2. From the **Options** menu, choose **Vision 10 Setup** >> **General Preferences.**
3. In the **General Preferences** dialog, the **Duplicates** section has **X Offset** and **Y Offset** settings. Set both these fields to zero.
4. Click **OK** to close the General Preference dialog.
5. Select the shape and choose **Edit** menu >> **Duplicate** (or use the **[Ctrl + D]** shortcut).
6. The duplicate has now been created precisely above the original. However, the duplicate is now the current selection.
7. With the duplicate still selected, apply a blue fill color.
8. From the **Shape Tools** flyout, apply a Stencil effect to the duplicate.
9. After the Stencil has been applied, the original shape will show through from below the duplicate.

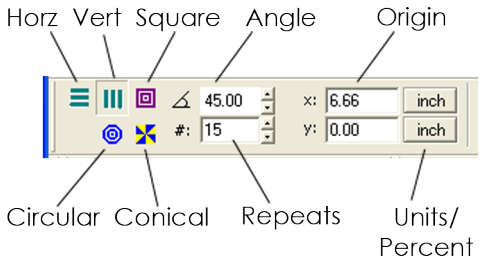

Fig. 101 - Stencil styles available from the SmartBar.

Chapter 3

Layout Tools

In This Section…

- Creating guides for aligning design elements
- Aligning shapes to the grid, plate size, or other shapes
- Resetting the grid lines and ruler origin
- Creating arrays and sequences of shapes
- Nesting shapes to minimize wasted media
- See also: "Create a Plate Design" on page 97
- See also: "Preparing a Series of Single Plate Badges" on page 100
- See also: "Creating Multiple Badges per Plate" on page 105

Guidelines

When dragging shapes, guidelines are used for precise alignment. A shape will "snap" to the location when dragged near a guideline.

Opening the Edit Guides Dialog

- When there is no selection, right-clicking on the workspace will open the **Edit Guides** dialog.
- Under the **Options** menu, choosing **Guides** >> **Edit Guides** will open the **Edit Guides** dialog.
- Double-click a guide for editing within the **Edit Guides** dialog.

Creating a Guide

- Use the **Edit Guides** dialog.
- Right-clicking a ruler will create a guide.
- For a selected shape, press **[Shift]** and right-click the shape nubs to create guides (not when editing a parametric shape).
- To add guides when node editing, press **[Shift]** and right-click the node.

Moving, Locking, and Hiding Guides

- When dragging a guide, press **[Shift]** to constrain the guide to the nearest ruler increments.
- To lock guides in place, right-click the workspace to open the **Edit Guides** dialog and check **Lock Guides.**
- To temporarily hide the guides, choose **Options** menu >> **Guides** >> **Use Guides [Alt + W]**.
- To remove a guide, press **[Shift]** and right-click the guide (when there are no objects selected).

Guide Labels

In the **Edit Guides** dialog, click the Label Font button.

The Grid and Align Palette

Press the **[Control]** key and right-click the workspace to display the **Align Palette** (Fig. 102), which is used to align shapes with respect to the grid. Typically, these tools are applied to shape nubs, though they may also be used when node editing.

- **Set Origin:** Set the grid origin to the selected location.
- **Resize Grid:** Resize the grid increments based on the distance between the selected location and the grid origin.
- **Snap to Grid Intersection:** Move the shape, such that the nub is at the nearest grid intersection.

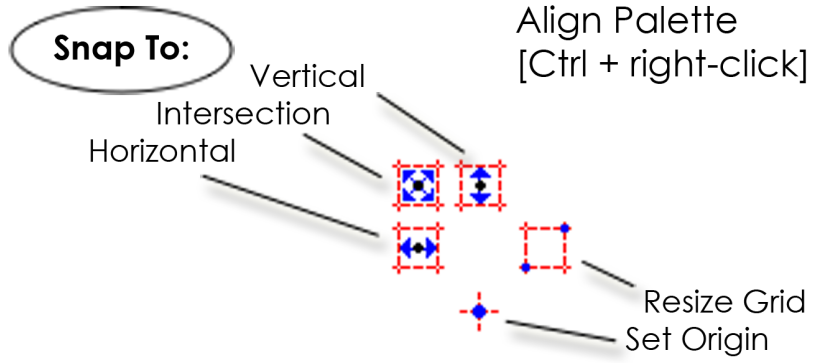

Fig. 102 - Select a node, and then use [Ctrl + right-click] to access the **Align Palette.**

- Snap Vertically/Horizontally: Move the shape, such that the nub is at the nearest grid line.

From the **Options** menu, the **Reset Origin** command will set the grid size according to the General Preferences setting. This is useful when the Set Origin or Resize Grid commands have been used.

Alignment Tool

From the Layout menu, choose **Arrange** and **Distribute** >> **Alignment.** The **Alignment** controls will appear in the SmartBar (Fig. 103).

Note: The Align command will reapply whatever settings were last used with the Alignment tool.

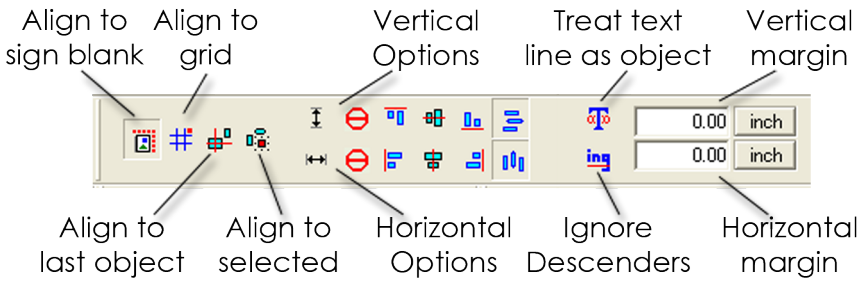

Fig. 103 - Alignment options available from the SmartBar.

See also: "Align Selected Shapes" on page 210

- **Align to plate size:** Shapes are aligned relative to the plate size
- **Align to grid:** Shapes are aligned relative the grid lines
- **Align to last object:** For several selected shapes, align the shapes according to the last shape selected in the group
- **Align to selected:** For several selected shapes, align the shapes according to the bounding box that is around the selection

The following two options are used when aligning text shapes:

- **Treat Text Line as an Object:** Enabled when using equal vertical spacing. For a text paragraph that has multiple

lines, this option will cause each line to be aligned separately.

- **Ignore Descenders:** Enabled when using equal horizontal spacing. Causes the text descenders to be ignored, such as for letters 'j', 'p', and 'q'. Alignment is performed with respect to the text baseline.

Array

From the **Layout** menu, the **Array** command is used to arrange multiple copies into rows, columns, or arcs.

Enable the **Within Plate Size** option to prevent copies from being created outside the bounds that you have set for your plate size.

For shapes arranged on an arc, specify the arc radius and the range of angles over which the copies are spread.

When creating an array, the copies can be automatically rotated. The **Spin Each** option will rotate each subsequent copy by the **Spin Amount**. The **Total Spin** option will progressively rotate each copy, such that the final copy is rotated by the **Spin Amount.**

Start Sequence

From the **Layout** menu, the Start Sequence commands are available from the **Sequence** flyout: **Start Sequence, Start Sequence by Vector, Start Sequence by List,** and **Start Sequence by Traits.**

The Start Sequence command has two uses. The first usage is to arrange the database order of the shapes, which determines the order in which the shapes are output to a cutter. The second usage is to arrange shapes graphically on-screen.

Creating a Sequence

1. Select the first shape.
2. From the **Layout** menu, choose **Sequence**, and **Start Sequence.**
3. Click each subsequent shape, one-by-one. A connecting line is drawn as each shape is clicked.
4. Click on an empty portion of the workspace to finish editing.

The **Start Sequence by Vector** command is similar to the **Start Sequence** command, except that multiple shapes are added to the sequence by drawing a line.

Creating a Sequence by Vector

1. Select the first shape.
2. From the **Layout** menu, choose **Start Sequence by Vector.**
3. Click and drag the cursor to form a line. All shapes that are intersected by this line will become part of the sequence.
4. Click on an empty portion of the workspace to finish editing.

Both the **Start Sequence** and **Start Sequence by Vector** commands can be used to arrange shapes. Repeat steps (1-3), and then right-click and drag the shapes across the workspace.

The **Start Sequence by List** command will open the **Sequence by List** dialog, which provides a visual list of all the shapes that are on the workspace. Shapes at the front of this list will appear above other shapes, and shapes at the back will appear below. The mouse can be used to drag shapes within this list. Alternatively, select a shape and use the **To Front, To Back, Forward One,** and **Back One** buttons. To use the **Reverse Order** button, at least two shapes must be selected.

- Holding the **[Shift]** key will align the shapes according to their lower-left bounding box corner.
- Holding the **[Control]** key will constrain the shapes either vertically or horizontally.

The **Start Sequence by Traits** command will open the **Sort** dialog, which will arrange the shapes according to their horizontal, vertical, or relative **(Nearest)** positions. Alternatively, the **Database** order arranges the shapes according to the order in which they were created.

Nesting

From the **Arrange** menu, the **Nesting** command (Fig. 104) is used to rearrange shapes into the minimum area necessary for printing or cutting the shapes. In this manner, the amount of wasted media required to output the shapes is minimized. Nesting may also be used to rearrange shapes across a non-rectangular area, such as leftover media.

To nest the individual letters of a sentence, the **Text to Graphics** command must be used first. Otherwise, the entire sentence will be nested without rearranging the individual letters.

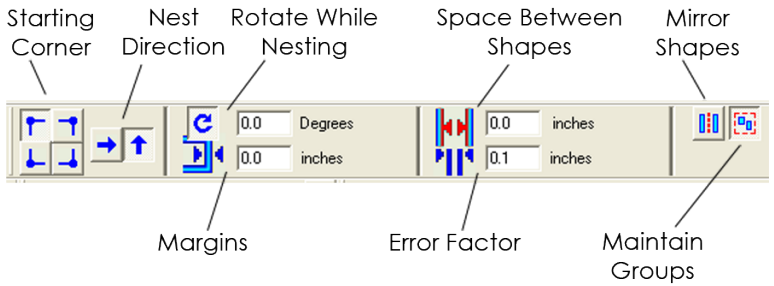

Fig. 104 - Nesting controls available from the SmartBar.

- **Specify Corners:** Choose the corner from which rearranged shapes will be placed. Nesting will begin in that corner and extend across the plate size.
- **Directions:** The direction in which shapes will be nested across the material.
- **Rotation:** Allow rotation of shapes by the specified maximum number of degrees. If 20 degrees, then shapes will be rotated in increments of 20 degrees to find the optimum placement.
- **Nesting Border:** The minimum distance to maintain from the material edge.
- **Clearance Between Objects:** The minimum distance between shapes.
- **Error Factor of Clearance:** For expert Vision 10 Software users, a value that is used to adjust nesting based on the average shape sizes.

See also: "Error Factor of Clearance" on page 149

- Allow Mirrored Parts: Allow objects to be flipped horizontally or vertically during the nesting process.
- Keep Groups Intact: If this option is off, then grouped shapes will be separated during the nesting process.

Error Factor of Clearance

During the nesting process, approximations are made that are based partly on the magnitude of the shapes being nested. Setting a small Error Factor will produce more consistent spacing between the shapes, but at a cost of more processing time. The following chart provides suggested Error Factor values, which are qualified by the broad categories of Fine, Medium, and Coarse. The table is based on the average dimension (inches or millimeters) of the shapes being nested.

Shape Dimension	Fine	Medium	Coarse
0 < Size < 100	0.1	0.2	0.5
100 < Size < 1000	0.2	0.5	1.0
1000 < Size < 3000	0.5	1.0	2.0
Size > 3000	1.0	2.0	5.0

Chapter 4

Importing Images

In This Section…

- Importing and exporting files
- Publishing to PDF
- Browsing Clip-Art
- Scanning and tracing images
- Aligning scanned images to a baseline
- Configuring a Digitizer Tablet

Importing Files

Vision 10 Software supports a wide range of commonly used file formats, such that you can work in the design environment that is most comfortable for you. The resulting design can then be brought into Vision 10 Software for further output preparation.

The file format determines the type of data that can be contained within that file. For example, a bitmap (BMP) file contains image data, whereas a plotter file would contain vector data. Some file formats can contain both image and vector data.

From the **File** menu, choose **Import.** The **Import** dialog will open.

- When importing with the **Merge** option checked, the imported file will be added to the existing workspace objects.
- If the **Merge** option is unchecked, then the existing workspace objects will be deleted.
- For certain types of files, the **Customize** button will become active in order to specify certain parameters for the given file type. For example, if the **Files of type** drop-list is set to **Bitmap Files (*.bmp),** then the foreground and background of monochrome bitmaps can be set.

- The **Filter** button is used to customize the file types that are listed within the **Files of type** drop-list.

After a file has been chosen for importing, one-or-more further import options dialogs will query how elements of the given file should be imported. The import options will vary according to the type of file being imported.

The Vision 10 Help File contains more information about how to import the following file formats:

Vision Software Formats

- Vision Software (CDL) Files
- Vision Software Backup (BAK) Files

Common Formats for Images

- Bitmap (BMP) Files
- JPEG Files
- TIFF Files
- Adobe PhotoShop (PSD) Files

Common Formats for Line Art and/or Images

- Adobe PDF Files
- Adobe Illustrator (AI) Files
- Adobe Encapsulated PostScript (EPS) Files
- AutoCAD (DXF) Files
- CorelDraw (CDR) Files
- Scalable Vector Graphics (SVG) Files
- Stereo Lithography (STL) Files

Clip-Art

From the Layout menu, choose the **Clip Art Viewer** to browse and open clip-art.

- **Browse Local** - Use this tab to locate clip-art on your hard drive, including files that were installed from the Vision Software Fonts & Sign Clip-Art CD.
- **OpenClipart** - This tab provides access to the entire online collection of the Openclipart.org repository, which is composed of 60,000+ pieces of public domain SVG artwork.

Exporting Files

Note: For comments about common file types, see Importing Files in the Help File.

To send a design to another Vision 10 Software user, it should be sufficient to save (**File** menu >> **Save**) the design in CDL format. Alternatively, there are four methods of exporting from Vision 10:

- **File** menu >> **Save Embedded File** – For designs that have linked images (e.g., using the Pattern Fills tool), save all such linked images as embedded images. The resulting size of the CDL file will be increased, thought it can now be sent to another designer without worrying about broken links.
- **File** menu >> **Export** – Use this method to save in file formats that store both images and cut paths (i.e., EPS files, AI files, etc.), or that support only cut paths (i.e., DXF files).
- **File** menu >> **Export Image** – Use this method to save in file formats that support only images (e.g., BMP files, JPEG files, TIFF files, etc.). The Export Image dialog will prompt for the **Color Depth** and **Resolution** at which the image will be exported.
- **File** menu >> **Publish to PDF** – Use this method to save the workspace as a PDF file that can be sent as a proof to the customer.

Minimizing Object Nodes when Exporting

In the lower-left corner of the Export dialog is the **Customize** button, which can be clicked to open the **Parameter Specification** dialog. The available controls on this dialog vary according to the file type, though generally this dialog is used to specify the export error tolerance.

As a rule, the default error tolerance (0.001 or 1/1,000 of an inch) will work well with most files to reduce the number of exported object nodes. However, if the default values are insufficient, then a caution is urged against setting a high error tolerance.

Scanning Artwork

Note: Before using scan commands, the scanner software provided with your scanner must already have been installed.

Note: For the 64-bit version of Vision 10 Software, the scanner software must support 64-bit applications. This can be done using third-party software that supports 64-bit applications.

To confirm that your scanning software interacts with 64-bit applications, there should be a file in your Windows / twain_64 directory.

From the **File** menu, the **Acquire Image** commands are used to scan images from an attached scanner.

- **Select Source** - Choose the scanner that will be used.
- **Acquire** - Create a bitmap of the scanned image.
- **Acquire Vector** - Automatically create a vector of the scanned image.
- **Scan and Trace Wizard** - Perform a series of steps that guide you through the process of scanning an image and tracing it into vector artwork.

See also: "The Prepare to Vectorize Wizard" on page 182

Scanning Tips

As a suggestion, set your scanning software to scale the artwork by a large amount, such as an increase of 1,000% (one thousand percent). This will provide a more detailed image that is easier to work with in Vision 10 Software.

If the scanned artwork is of low quality, then it may be desirable to use a low dpi when scanning (say 75 dpi). Otherwise, a high dpi will merely magnify any mistakes that are in the artwork.

When tracing scanned artwork, use a low Tolerance setting to avoid creating a large number of nodes.

After tracing is complete, the resulting shapes are grouped. To node edit these shapes, perform an **Ungroup** command, and then apply a **Make Path** operation. The resulting shape can then be node edited.

Setting the Allowable Error

Under the **Arrange** menu, the **Convert to Curves** command is used to convert line art into Bézier curves. Once converted into Béziers, the line art should scale more smoothly. When converting, set the **Allowable Error** to one-hundredth (1/100) of the smallest dimension of the shape.

1. Suppose the line art measures 8 by 14 inches.
2. Units do not matter, so just take the smaller value (8), and divide by 100.
3. Therefore, the error should be 0.08 .

Align To Baseline

From the **Layout** menu, the **Align To Baseline** command is available from the **Arrange and Distribute** flyout.

For images that are scanned into Vision 10 Software, it may be the case that the objects are slightly misaligned with the plate size. The **Align to Baseline** feature allows these objects to be aligned to either the horizontal or vertical plane. In addition, images can be aligned to a 45 degree angle, or a custom angle may be set.

Before performing the alignment, a line must be defined along the edge the image. To define this line, two points must be set. Clicking within the workspace will set the first point (the point of rotation), and clicking again will set the second point (the snap point). When a snap angle is applied, the line will be aligned to match the indicated angle, and the image will remain aligned with the line.

Digitizing Tablets

From the **Edit** menu, the **Digitizing Setup**… command is used to configure a digitizing tablet.

Though no other intermediary software drivers are required for the tablet to be used with Vision 10 Software, please ensure that the tablet is correctly connected to the computer, according to the manufacturer instructions.

The **Enable Digitizer** option is used to enable and disable the digitizer. In order to reduce the load on the system, it is recommended that the digitizer be disabled when not in use. This will prevent Vision 10 Software from polling the tablet, and therefore free up system resources.

The **Track Pen** option is used to enable and disable the

tracking of the digitizing pen. In order to reduce the load on the system, it is recommended that the pen be disabled when not in use.

The **Reset Baseline** option is used when starting a new drawing, or if the original angle and position of the tablet baseline need to be restored. The baseline of the tablet will be reset to match that of the material.

The **Set Baseline** option is used to align the baseline in Vision 10 Software with that of the artwork (Fig. 105). This avoids the requirement that the artwork be precisely aligned with the bottom of the tablet.

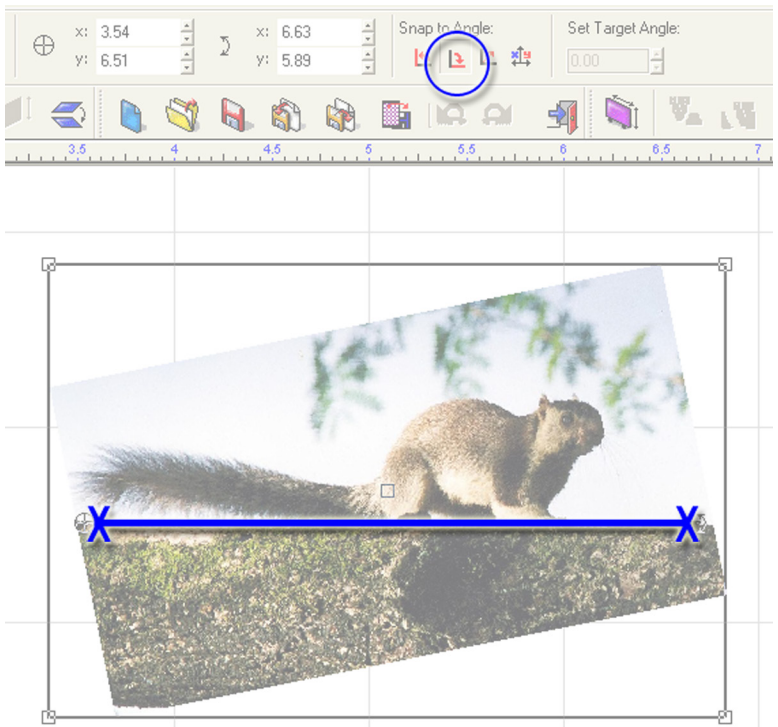

Fig. 105 - Using points of reference within the artwork, click to set each end of the baseline . In the SmartBar, choose the angle that the baseline will snap to.

Chapter 5

Editing Bitmap Images

In This Section…

- Setting memory resources for Undo
- Types of images (Image Mode)
- Creating bitmap images from line art
- Applying three-dimensional chiseled or beveled patterns
- Resizing images using the Super Size tool
- Easy image clipping with Fluid Mask
- Applying color adjustments, filters and plug-ins
- Editing images with AccuScan
- Vectorizing images into line Art
- Using PhotoMachine to line-trace an image

Setting Undo Resources

Before we get started with editing bitmap images, we should highlight the fact that large images can require quite a bit of your workstation memory and hard drive space. This is particularly significant with respect to performing **Undo** operations to backtrack over your bitmap editing. If the number of **Undo** steps (and their required memory) exceeds the allocated resources, then older **Undo** steps will be discarded.

If you want to have more resources available for your **Undo** operations, then from the **Vision 10 Options menu,** choose **Vision 10 Setup** >> **System Preferences** >> **Undo Setup** (Fig. 106).

Scratch Disk Memory

The total amount of **Undo Setup** memory is the sum of your workstation memory and its available hard drive space. Knowing this limit, you have the freedom to increase the maximum amount, while keeping in mind that you want to leave enough resources for other applications. As such, this is a personal judgment call, but you can generally increase the maximum a certain amount, and if you are finding that there aren't enough undo when working with your bitmaps, then increase the maximum amount again.

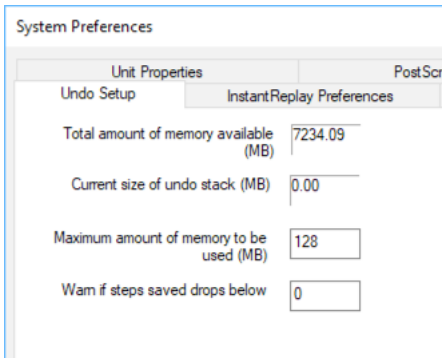

Fig. 106 - Allocate the amount of memory that will be available when undoing bitmap edits.

Types of Images (Image Mode)

There are five image types available for image editing: CMYK, RGB, Grayscale, Indexed Color, and Monochrome. To change the type of bitmap in Vision 10 Software, use the **Image** menu >> **Mode** flyout.

- The **CMYK** type is typical of subtractive color mixing (i.e., printed images). This mode is used where specific CMYK values are envisioned for a design, and it is desirable to avoid possible rounding differences that might occur when printing RGB images (i.e., converting RGB to CMYK when printing).
- Under Windows, the **RGB** type has the highest color depth, and as such is often referred to as a full-color bitmap, a 24-bit bitmap, or an image that has "millions of colors.
- Converting a bitmap to **Grayscale** will discard all the color information within the image. Converting to grayscale is a common activity when tracing an image into cut paths, or when preparing an image for laser engraving.
- To reduce file size, bitmaps are sometimes saved as **Indexed Color** bitmaps, which can appear more granular because the total number of colors are limited to either 256 or 16 colors. As such, indexed color bitmap are not commonly used with high-resolution images , unless a particular effect is desired.
- For **Monochrome** bitmaps, note that Windows defines a monochrome bitmap as a two-color image, where white is the default background color, and black is the default foreground color.

Rendering Bitmaps

Render to Bitmap

From the **Transform** menu, the **Render to Bitmap** command is used to convert a shape into a rectangular bitmap.

When the bitmap is created, empty portions of the bitmap will be set to white. However, for Full Color bitmaps, tick the Use **transparency** checkbox to automatically set the white background as transparent.

If your bitmap is not Full Color, then use AccuScan to set a transparent background.

Transparent Background Using AccuScan

1. Suppose that a bitmap has a white background that needs to be set as transparent.
2. Double-click the bitmap to enter **AccuScan** mode.
3. Above the **Palette** button, set the **Target Color** to white.
4. Press **[Ctrl]** and then left-click the **Target Color**.

Render Contour Bitmap

From the **Transform** menu, the **Render Contour Bitmap** command uses process colors to create three-dimension chiseled or beveled patterns. **The Constant Slope** option will cause the chisel/bevel effect to reach its maximum height/depth at the same rate. For areas of the bitmap that have a short distance between the edge and center, the bitmap will tend to plateau. The **Constant Height** option will cause the chisel/bevel effect to dip/peak along the centerline of the shape.

Resizing Images

On the Vision 10 Software workspace, images are treated like objects that can be resized according to the job requirements. However, resizing will not change the image resolution. To increase the image resolution, either use the Image Size or Super Size Image commands.

Image Size

From the **Image** menu, the **Image Size** command displays size and resolution parameters for the selected bitmap. The **Pixel Dimensions** refers to the on-screen image size listed in pixels. The **Resolution** is listed in pixels per inch (i.e. like dpi or dots per inch). The Image Dimensions are the actual size at which the image will be printed or cut, expressed in the current ruler units.

Super Size Image

From the **Image** menu, the **Super Size Image** is similar to **Image Size**, except that more processing time is required to retain the detail quality of the original image.

1. On the Vision 10 workspace, scale the image to the desired print dimensions.
2. From the **Image** menu, choose **Super Size Image.**
3. Set the desired resolution quality of the image.
4. Click **Apply**, and the **Zoom Engine** dialog will open.

   If no change in resolution has been specified, then clicking **Apply** will be ignored.
5. Adjust the **Zoom Engine** controls to retain the desired quality, and then click **OK.**

Fluid Mask - Easy Image Clipping

Note: Fluid Mask is an add-on feature that can be purchased for use with Vision 10 Software.

Fluid Mask is an intuitive tool for knocking out the background of an image, such as a photo of a person standing before scenery. The process is very much like a paint-by-numbers coloring book, where you paint with a green brush (the Keep brush) to indicate the foreground, and paint with a red brush (the Delete brush) to indicate background.

Suppose that you have a customer photo, such as a JPEG image of their child that was taken using a digital camera (Fig. 107). However, the background of the image is cluttered and needs to be clipped using Fluid Mask.

Fig. 107 - Using Fluid Mask: (a) the original image, (b) after Fluid Mask has identified common regions, and (c) the finished image with clipped background.

1. Import the image onto the Vision 10 Software workspace, select it, and then choose **Image** menu >> **Fluid Mask.**
2. The Fluid Mask editing mode will launch, and the image will be analyzed in order to automatically identify similar regions of color and texture.

   Several seconds may be required, and the resulting regions will appear much like a paint-by-numbers coloring book.
3. Along the top of the Fluid Mask window are three tabs: **Source, Workspace,** and **Cut-out**. The **Workspace** tab should be active.
4. On the left-hand side is the **Tools** toolbar.
5. From the Tools toolbar, choose the **Delete Local Brush** tool (Fig. 108).

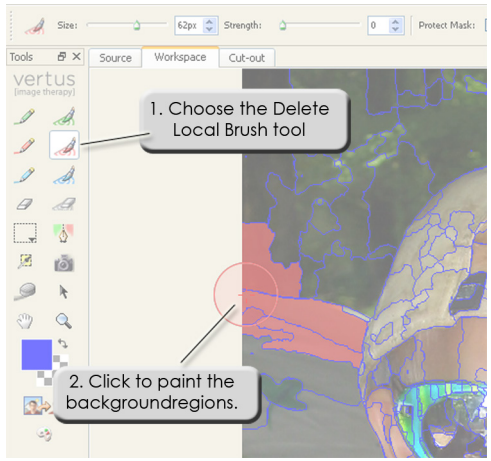

Fig. 108 - From the Fluid Mask Tools toolbar, use the **Delete Local Brush** tool for painting the red background mask.

6. With this brush, move the cursor over part of the background image and then left-click.

   Notice that regions that were overlapped by the brush have now been filled with a red mask.
7. Continue to click other portions of the background, such that you are filling in the background with a red mask (i.e., this portion is being marked for deletion).

   In addition to clicking, you can also click-and-drag to paint over an area.
8. If necessary, remove the tick from the **Show Object Edges** checkbox. This will hide the regions, such that you can distinguish any portions of the background that were missed.
9. When you have finished painting the background red, choose **Image** menu >> **Auto-Fill Image.**

   The foreground of the image will be automatically painted green (i.e., the foreground will be kept).

   Between the red and green regions, a blue blending line will indicate how transparency should blend the image into background objects. For example, using blue on human hair will cause that hair to appear natural against other backgrounds.

10. From the **Tools** toolbar, click the **Create Cut-Out** button.
11. From the **File** menu, choose **Save And Apply.**
12. The **Fluid Mask** window will close, and the view will return to Vision 10.
13. The **Prime** dialog will query whether a primer should be automatically applied to the image. For the sake of this example, choose **No** and click **Close.**
14. The resulting image with clipped image will be placed on the Vision 10 Software workspace.

Fluid Mask Comments

Green for foreground, Red for background

- In our example, we used a red brush to paint the background mask, and then we used **Image** menu >> **Auto-Fill Image** to automatically complete the foreground mask.
- Depending on the image, we may have found it easier to use a green brush to paint the foreground mask, and then use **Auto-Fill Image** to complete the background mask.

Blue for busy edges (e.g., hair, fur and feathers)

- For images that have busy edges, the easiest procedure is to first use the **Blend Exact Brush** (blue) with a thick brush to paint those edges, and then use a thin brush to trace the remainder of the principle image.
- Once the image has been traced with blue, use the **Keep Exact Brush** (green) to paint within the traced image.
- Optionally, use Image menu >> **Clean All Blend** and **Clean All Keep** to catch any stray pixels that you may have missed.
- Then use **Image** menu >> **Auto-Fill with Delete** to complete the background.

Local Brush and Exact Brush

- For both green and red, there is a **Local Brush** and an **Exact Brush.**
- Use the **Local Brush** to paint regions.
- Use the **Exact Brush** to paint only pixels (i.e., this is a fine editing tool).

Increase the brush size

- Use the square bracket keys '[' and ']' to change the brush size.

Increase the brush strength

- A brush with strength zero will affect only the regions that you touch with the brush.
- A strength greater than zero will cause adjacent regions to be painted (e.g., like a damp brush).

Use the Clean Tool

- After most of a background or foreground mask has been filled, choose the **Tools** toolbar >> **Clean Tool**, and then click the given mask. Any speckles within the mask will be automatically painted.

Hide the Region Edges

- Along the bottom of the Fluid Mask window is the Show Object Edges checkbox. Remove the tick to reveal missed areas.

Undo the Paint Steps

- If you have painted the wrong portion of the image, then use the **Edit** menu >> Undo command **[Ctrl + z].**
- Alternatively, from the **Tools** toolbar, use the **Erase Brush** (there are both Local and Exact versions).

Zoom

- Press the 'z' key to activate the zoom magnifying glass, then marquee-select the zoom region.
- To see the full size image, use the **[Ctrl + 0]** shortcut (control + zero).
- Use the '+' and '-' keys to zoom in and out.

Image Menu - Color Adjustments

From the **Image** menu, there are flyouts for both **Easy Color Adjustments**, and **Color Adjustments**. The **Easy Color Adjustments** are automated settings that can be used to quickly improve image quality. For greater control over the image, use the **Color Adjustments** flyout.

Easy Color Adjustment tools

Note: These tools can be applied multiple times to achieve the desired effect.

- **Cleanup Black** - Improve the contrast (i.e., appearance of details) within dark regions of the image.
- **Cleanup White** - Improve the contrast (i.e., appearance of details) within light regions of the image.
- **Make Lighter** - Reduce the depth of shadows within the image (e.g., increase the brightness).
- **Make Darker** - Tone down the highlight regions of the image (e.g., improve details in the light portions).
- **Increase Saturation** - Strengthen the distinct hues within the image.
- **Blur Image** - Soften details within the image.
- **Sharpen Image** - Increase the contrast of details within the image.

Color Adjustment tools

- **Levels** – Adjust the distribution of color intensities throughout the bitmap, either to correct a scanned image, or to create an artistic effect.
- **Contrast/Brightness…** – The Contrast setting is used to modify the perceived difference between light and dark areas of the bitmap. The Brightness setting is used to modify the overall intensity of the bitmap.
- **Hue/Saturation…** – Adjust the Hue, Saturation, and Lightness values of the bitmap.
- **Curves…** – Adjust the tonal range (shadows, midtones, and highlights) of the bitmap.
- **Invert** – Inverts the colors in the bitmap, making it like a photographic negative. This feature can also be used to invert the color of a grayscale image, making the black white and the white black.
- **Posterize…** – Limit the number of color levels per plane (red, green, and blue). For example, two levels means two of red, two of green, and two of blue.
- **Histo Contrast…** – Increases or decreases the contrast of the bitmap image, using a histogram to determine the median brightness. Once the median brightness has been determined, pixel values above the median are brightened, and pixel values below the median are darkened.
- **Stretch Intensity** – Increase the color contrast in the bitmap without changing the number of discrete intensity values (ordinary contrast adjustments can lose high- and low-end values).
- **Histo Equalize** – Linearizes the number of pixels in the bitmap, based on the specified color space (RGB, Grayscale, etc.). This can be used to bring out detail in dark areas of an image.
- **Balance Colors…** – Redistributes the RGB values of individual bitmap pixels. For each pixel, its red, green, and blue components are isolated, and the color sliders are then used to increase or decrease the percentage RGB values within each pixel. In this manner, a color cast can be removed from the bitmap, or a color tinge can be created for an artistic effect.
- **Swap Colors…** – Swap the color channels of the original bitmap. This feature is useful for obtaining artistic effects that would otherwise be difficult to achieve using the other Color Adjustment tools.

Image Menu Filters

From the Image menu, the Filters flyout provides a selection of effects that can be applied to bitmap images.

Sharpen filters

- **Sharpen** – Increase or decrease the sharpness of the bitmap.
- **Unsharp Mask** – Despite its name, this is actually a sharpening function because it increases the contrast between light and dark areas of the bitmap. Wherever there is a brightness transition between light and dark, the light area is made lighter, and the dark area is made darker, such that the transition becomes more distinct.

Blur filters

- **Average** – Changes the color of each bitmap pixel to the average color of pixels within the surrounding pixels. This results in a blur effect.
- **Gaussian Blur** – Smooth or blur pixels with respect to their surrounding pixels. The Radius determines the surrounding area that is considered when blurring a pixel.
- **Motion Blur** – Blur the bitmap to create the illusion of movement within the image. Positive angles indicate a clockwise blur, and negative angles indicate a counter-clockwise blur.
- **Median Filter** – Changes the color of each bitmap pixel to the median color of pixels within the surrounding pixels.

Noise filters

- **Add Noise** – Add random pixels to the bitmap. Adding noise can be an effective means of making an image appear older or dirtier, especially where the purpose is to distract the eye from imperfections in the original image.
- **Despeckle** – Removes speckles from the bitmap, such as those present in scanned images.

Stylize / Artistic filters

- **Emboss** – Applies an emboss effect to the bitmap, letting you specify the depth and direction of the effect.
- **Solarize** – Creates an effect that mimics the accidental exposure of photographic film to light. This is done by inverting all color intensities that exceed the **Threshold** value.
- **Oilify** – Create an oil-painting effect. For each pixel, the **Amount** indicates the number of surrounding pixels that are considered when creating the effect.
- **Mosaic** – Create a mosaic effect by dividing the bitmap into tiles of the specified size, and then averaging the pixel colors within each tile.
- **Spatial Filter** – An assortment of artistic filters.
- **Halftone** – Converts a bitmap with any resolution to a halftoned bitmap. A halftoned bitmap is a 1-bit bitmap that has been dithered for black and white printing or display.
- **Intensity Detect** – Set all pixel color intensities to 255, or clear them to zero. If a pixel's intensity is between Low and High, then set the intensity to 255. Otherwise, clear the intensity to zero.

Remove Red Eye

- Removes the "red eye" effect that results from flash photography. For each pixel, only the red color component is evaluated.

Image Menu Plug-In Filters

Plug-ins are software modules that are used to create special effects for bitmaps. These modules may be obtained through either Adobe or third-party plug-in developers.

After plug-ins have been installed on your computer, go to Vision 10 Software and use **Image** menu >> **Options** >> **Plug-In Paths** to indicate the hard drive location of the plug-ins. The plug-ins will then be available under the Vision 10 **Image** menu.

Note: Some plug-ins require that a foreground and background color be set. In this case, use the **Set Foreground Color** and **Set Background Color** commands.

The Plug-ins Helper Dialog

Whereas plug-ins are typically designed only for bitmaps, Vision 10 Software can also apply plug-ins to line art, or to a combination of line art and bitmap objects (Fig. 109).

By using line art as the basis for your plug-in effect, the resulting effect can be clipped to the line art. In this way, the following advantages are obtained:

1. The "empty" portions of the plug-in bitmap are usually set to a white color, which are undesirable when arranging the bitmap with surrounding objects. Clipping to the original line art will hide the empty portions of the bitmap.
2. The bitmap that is produced by the plug-in will often have a jagged edge, which will look poor when scaled up to a large poster size. Clipping will "trim" the jagged edge, such that scaling is acceptable.

Note: A good alternative to case (2) is to scale your original line art to the desired size before applying the plug-in effect. Line art shapes will scale without diminishing their details.

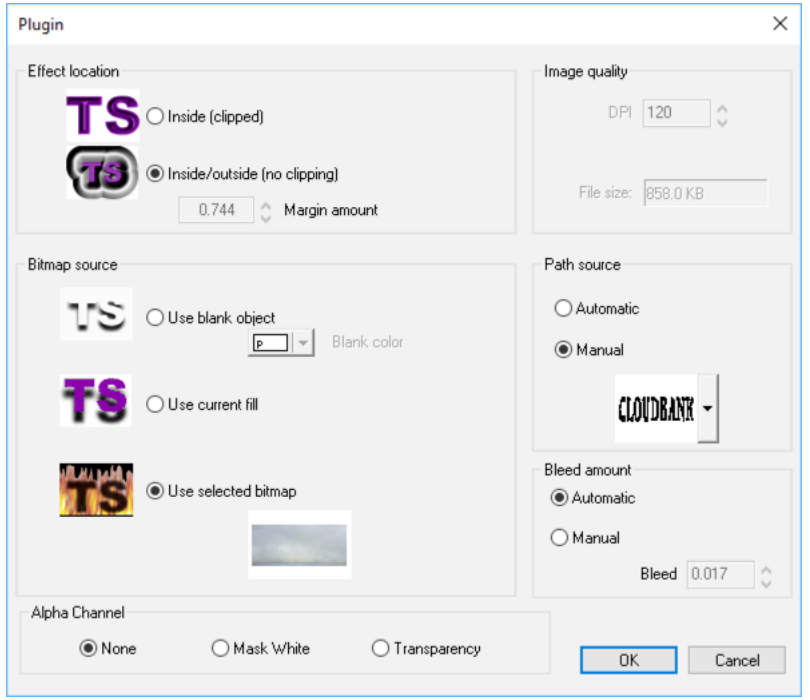

Fig. 109 - When plug-ins are applied to line art, the Plug-ins Helper dialog is used to define how the effect will be applied to the line art.

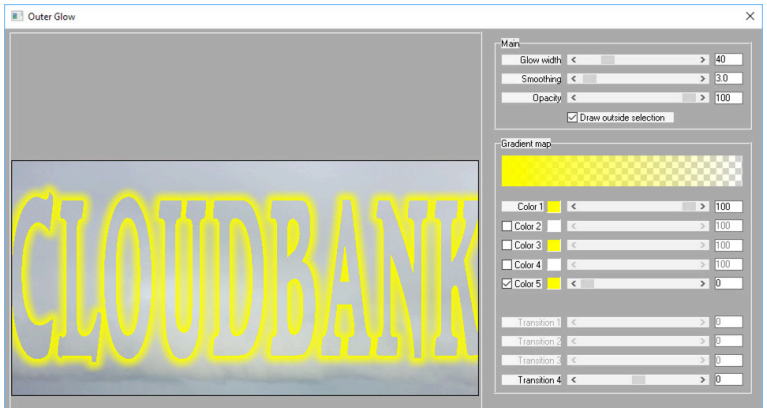

Fig. 110 - The plug-in effect will be constrained to the line art.

Plug-ins: Production Plug-ins

The Production plug-ins are used to perform a finishing modification that prepare an image for output, such as for garment printing. These plug-ins are available via Image menu >> Production Plug-ins.

- **KnockMeBlackOut** - For printing on black garment material, reduce the amount of black ink that is required.
- **KnockMeColorOut** - For printing on color garment material, reduce the amount of color ink that matches the garment color.
- **Transparency Opacity** - Adjust the relative strength of the transparency layer, thereby adjusting the amount of white underbase that will be printed.
- **Posterize** – Resample the image according to discrete color regions, as would be used when creating color separations.

Plug-ins: Vision Software Effects

In addition to the third-party plug-ins, Vision Software provides a new set of in-house plug-ins, which are available through the Image menu >> Vision Software Effects flyout.

- **Bevel** - Create a raised, three-dimensional chiseled or beveled effect.
- **Box Blur** – Add vertical and/or horizontal blur to an image.
- Lighting Effects – Combine up to six (6) distinct light sources to create the effect of artificially illuminating the image.
- **Sphere Effects** – Introduce one-or-more distortions that simulate raised sphere surfaces.
- **Tilt Effects** – Change the image perspective to create the sensation of depth.
- **Easy Color Adjustments** – Like Image menu >> Easy Color Adjustments, except all of the controls are provided within a single dialog.
- **Gaussian Blur** – Smooths or blurs pixels with respect to their surrounding pixels.
- **Marble Effect** – Generate the appearance of realistic marble surfaces.
- **Motion Blur** – Create the appearance of motion within an image.
- **Outer Glow** – Simulate a light source that emanates outward from the principal object. The effect is best applied to vector (or text) object that is above a bitmap.
- **Pixelate** – Create the impression of a low resolution image.
- **Radiance** – Create a sense of fluidity within a loose structure (e.g., shaggy fur, oil on water) or distortion effect (e.g., radiating flames, rising smoke, choppy water).
- **Shadow** – Using a vector shape as a guide, the Shadow effect will create a shadow distortion upon an underlying bitmap.
- **Sharpen** – Provides a variety of parameters for improving image crispness.
- **Silver** – Similar to the Bevel filter, except that additional controls are provided for modifying the metallic lustre and lighting of the effect.
- **Sketch** – Create the appearance of a hand sketched artwork.
- **Wood Effect** – Generate the appearance of realistic wood surfaces.

Plug-ins: Harry's Filters™

Note: More of this type of plug-ins are available through the Plug-in Site: **www.thepluginsite.com**

Vision 10 Software includes sixty-nine (69) plug-ins that are available through a single dialog interface. From the **Image** menu, choose **The Plug-in Site** >> **Harry's Filters.** The available plug-ins are:

Color

- **Add Color** – Adjust the RGB color channels within the image.
- **Cartoon Art** – Assign an off-tone pallor that suggests an artist's rendition.
- **Colorize** – Vary the image hues as if the image were based

upon a monotone print.

- **Color Mood** – Introduce sharp color contrasts.
- **Color Wizard** – Like Color Mood, except with pastel color contrasts
- **Expose** – Create over- and under-exposure effects that are reminiscent of developed film.
- **Twilight Colors** – Sombre mood that suggests dim lighting (e.g., dawn or dusk).
- **Old Film** – Simulates the graininess of film that has begun to deteriorate due to age.
- **Inversity** – Stark hues that suggest the presence of overhead lighting.

Artistic

- **Atmospherizer** – Rotate the spectrum of colors as if the image were being viewed through a transparent color sheet of plastic film.
- **Blurry Painting** – Present the image as if it were a watercolor or composed of paint daubs.
- **B/W Limiter** – Attenuate the color values within the image to emphasize its grayscale components.
- **B/W Limiter Pro** – Combine a grayscale with hints of color from the original image.
- **Color Cocktail** – Emphasize kaleidoscopic transitions and color shifts.
- **Crochet Art** – Superimpose the image with a pattern that suggests the texture of knitted cloth.
- **Equalizer** – Suppress color values to produce a more subdued image.
- **Equalizer Pro** – Suppress color values to emphasize certain hues from the original image.
- **YUV Intensity** – Adjust the image in terms of YUV color model. Tends to produce pastel colors with stark contrasts.
- **Color Compress** – Produce a posterized appearance with intense hue shifts.

Gradients

- **Beam** – Subject the image to a strong light source.
- **Chaos** – Introduce sporadic shading throughout the image.
- **Double Sphere** – Apply a color distortion that exudes from the image center.
- **Frame** – Border the image with the appearance of vertical color strips that convey a sense of change or progress.
- **Mixed Beam** – Overlay the image with filtered colors, as if there were multiple color light sources.
- **Mixed** – Shift color regions within the image as if it were the product of a complex screen print.
- **Mystic Mountain** – Apply colors with a dream-like quality.
- **Quad Beam** – Burnish the image as if it were subjected to sources of strong white light.
- **Star** – Burnish the image as if it were subjected to an intense source of white light.
- **Spirals** – Superimpose concentric circles that suggest disorientation or activity.
- **Triple** – Intense hues of vertical bands or concentric circles.

Patterns

- **Radial Sinality** – Explosive rays or bands of varying amplitude that convey energy and inspiration.
- **Sinfinity** – Suggestive rays or bands of varying hues and amplitude.
- **Rasper** – Overlay curves and patterns like images from a contemporary fashion magazine.
- **70s Pop** – Overwhelm the image with a storm of multiple color light sources.
- **Random Art** – Intense rays or bands that suggest mood and transition.
- **Symbol Shaper** – Horizontal bands that suggest vision and realization.

Warp

Wonderland – Ripple the image like water distortion or waves of heat.

Tiled Glass – Divide the image into blocks of glass.

- **Swirl** – Ripple the image like a sheet that is being blown by a rotating fan.
- **Picture Chopper** – Ripple the image like a sail that is blowing in the wind.
- **Glass Slices** – Subdivide the image into fragments or slivers of glass.
- **Kamikaze** – Rotate and zoom the image.

Noise

- **Circular Noise** – Create static like a television that is experiencing poor reception.
- **Grain Maker** – Introduce a posterization that provides the image with a textured appearance.
- **Nail Art** – Superimpose a lattice of curved patterns.
- **Noisy Blur** – Distort the image as if it were being viewed underwater or from behind a panel of thick glass.
- **Noise Reducer** – A simple noise reduction filter for imported images.
- **Digital Cutter** – Divide the image into vertical barcode-like line segments, imposing the idea of digital static.

Encrypt/Decrypt

- **Black and White** – Combine up to eight (8) noise channels to produce a convoluted amalgam of the image.
- **Color** – Vary each pair of sliders (Key 1 and 2, Key 3 and 4, etc.) to resample the color regions of the image.
- **Moiré Decryption** – Introduce posterization and static that suggest corrupted image data.
- **Moiré Encryption** – Introduce posterization and static that suggest corrupted image data.
- **Noise** – Combine up to eight (8) noise channels.
- **Radial** – Subdivide the image into concentric sections that suggest a high-technology cyberpunk theme.
- **Sinus** – Apply short horizontal bands of noise.
- **Weak** – General soft background noise, as would be caused by a loose connector on a security monitor.

Other

- **Convolver** – Varying emboss effects that highlight details in the image.
- **File Size Reducer** – Discard image data, though at the risk of losing image detail.
- **Overpainting** – Overlay additional color layers like rough paint strokes.
- **Quadrant Flip** – Divide the image into four quarters, and then rotate the sections.
- **Streamer** – Create vertical or horizontal motion blur lines.
- **Zoom** – Magnify a circular portion of the image.
- **Convolver Pro** – Advanced emboss effects that highlight details in the image.

Nature

- **Dawning** – Imbue the image with a light source that suggests a rising sun.
- **Flame** – Create flame lines along bottom of image.
- **Lightning** – Place jagged diagonal lines to simulate a flash of lightning.
- **Polar Lights** – Simulate the presence of Christmas lights.
- **Super Nova** – Classic transition effects from science fiction movies.
- **Tornado** – Overwhelm the image with the appearance of high winds and debris.

Plug-ins: Mehdi™

Note: More Mehdi plug-ins and examples are available through www.mehdiplugins.com

The Mehdi plug-ins provide a variety of artistic effects.

- Noise Shampoo – Simplify the complexion of the subject matter, such that the image colors are more homogeneous like that of computer-generated artwork.

Bitmap Editing Using AccuScan

From the Scan Tools flyout, the AccuScan tool is used to edit bitmaps. Double-clicking a bitmap will also activate the AccuScan editing mode. The AccuScan tools (Fig. 111) may then be used to edit the bitmap, apply filters and plug-ins, and convert the bitmap into a line-traced drawing format.

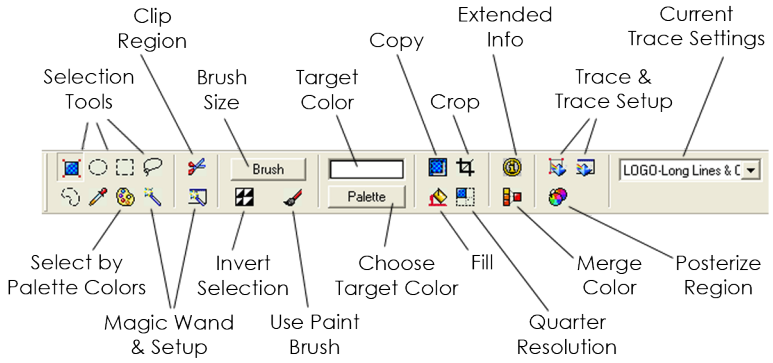

Fig. 111 - AccuScan controls within the SmartBar.

Selection Tools

When creating a selection, the [Shift] key may be used to extend the previous selection. In addition, the [Control] key subtracts from the previous selection.

- **Whole Bitmap:** Select the entire bitmap
- **Ellipse Select:** Select an oval area
- **Rectangle Select:** Select a rectangular area
- **Draw Lasso:** Select a freehand area
- **Draw Select:** Define an area that has an irregular shape
- **Eyedropper:** Pinpoint a color in bitmap and add it to the Shop Palette
- **Palette:** Select regions based on specific colors. Colors may be either added or subtracted from the current selection.
- **Magic Wand:** Select region based on similar colors. The Magic Wand setup may be used to customize what is considered to be "similar."

Applying Filters and Plug-Ins

When in AccuScan editing mode, the Image menu Color Adjustments, Filters, and Plug-Ins can all be applied to bitmaps. If only part of the bitmap is selected, then the effect or filter will only be applied to the selection.

Bitmap Palette Colors

Click the Palette button to display the current colors in the bitmap palette. The Image Palette dialog may be used to select palette colors and move them to the front or back of the palette.

If there is not enough space in the palette for new colors, then use the Merge Colors tool to reduce the number of palette colors.

Transparent Bitmap Color

Above the Palette button is the current **Target** color. The target color is used with the **Brush** and **Fill** tools.

The target color can be set to be transparent by pressing the **[Ctrl]** key and then left-clicking the Target color (Fig. 112).

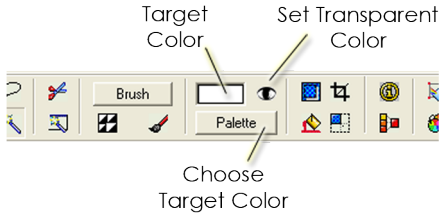

Fig. 112 - Transparent color controls in AccuScan.

Bitmap Manipulation Tools

The bitmap editing tools are summarized as follows:

- **Brush** – Edit the bitmap using the Target color.
- **Move Region** – Copy the selection and move it to a new location.
- Press [Ctrl] to fill the old region with the Target color.
- **Crop Tool** – Trim the bitmap to the selected area.
- **Fill Region** – Fill the selected area with the Target color.
- **Quarter Bitmap** – Reduce the resolution of the bitmap by 50% in terms of its width and height.
- **Extended Information** – Display information concerning the dimensions and resolution of the bitmap.
- **Merge Colors** – Used to remove all unused colors from the bitmap palette, and to replace selected colors in the Image Palette dialog with the Target color.
- **Posterize Region** – Generating a color palette for a bitmap where none exists, or expand/reduce the size of the bitmap palette.

How to merge palette colors

1. Use the **Posterize Region** tool to reduce the number of colors in the bitmap to 256 or less.
2. Beneath the **Target** color, click the **Palette** button.
3. The **Image Palette** dialog will open.
4. In the **Image Palette** dialog, click two-or-more colors, such that they have white borders.
5. Click the **Merge Colors** button, and the selected colors will be set to the **Target** color.

Vectorizing Images into Line Art

Vision 10 Software provides two methods of vectorizing an image into line art. The classic vectorization method provided leading-edge tools that were suitable for previous Vision 10 Software users. The new method uses the **Prepare to Vectorize Wizard,** which introduces new tools for improving the image quality, knocking out the image background, and posterizing the image colors prior to tracing.

The Classic Vectorization Method

The classic method of vectorizing a bitmap involved the **Posterize Region** and **Merge Color** tools to simplify the number of colors in the image. The following is an overview of the classic vectorization method:

Posterize the bitmap

1. In AccuScan mode, click the **Posterize Region** tool.
2. A dialog will query whether the vectorize wizard should be used. Click **No** to use the classic method.
3. The **Posterization** dialog will query for the number of colors to reduce the number of colors in the bitmap, such as 8 or 9 colors.

Merge similar colors

4. Beneath the **Target** color, click the **Palette** button to open the Image Palette dialog.
5. In the **Image Palette** dialog, click the similar colors, such that they have white borders.
6. Double-click the color these similar colors should be merged into. The **Target** color will be set.
7. Click the **Merge Colors** button, and the selected colors will be set to the **Target** color.

Vectorize the bitmap

8. At the far-right of the AccuScan SmartBar, choose the vectorization settings from the drop-list.
9. Click the **Vectorization** button.

The bitmap will now be vectorized, and the resulting vector shapes will be grouped.

The Prepare to Vectorize Wizard

This vectorization method uses the **Prepare to Vectorize Wizard,** which involves self-contained steps for improving image quality, knocking out the image background, and posterizing the image colors prior to tracing. The following is an overview of the **Prepare to Vectorize Wizard** steps:

Initial Wizard Settings

1. From the **Image** menu, choose **Prepare to Vectorize Wizard.**
2. The initial wizard page will query for **Super Size** and **Image Background** settings. Use the default amount of memory, click **Yes** to use Fluid Mask, and click **OK** to continue.

Zoom Engine (Super Size)

3. The **Zoom Engine** dialog will preview the image at the higher resolution quality.
4. Click **OK** to accept the default **Zoom Engine** settings.

Fluid Mask

Note: If the Fluid Mask tool is not available, then please skip to step (13).

5. The **Fluid Mask** window will analyze the color regions within the image, and thin irregular lines will be used to roughly identify each region.
6. Using the **Delete Local Brush** tool, click background regions of the image, such that they background appears to be filled with red.
7. If a portion of the foreground is accidentally filled with red, then use Undo **[Ctrl + z]** to correct.
8. If a portion of the background is difficult to fill correctly, then use the **Delete Exact Brush** to manually paint the background by dragging strokes.
9. When the background has been filled with red, choose **Image** menu >> **Auto-Fill Image.** The background will remain red, the foreground will appear to be filled green, and a blue "blending line" will appear along the boundary between red and green regions.
10. Choose **Image** menu >> ***Create Cut Out.*** The image should now appear with the formerly red portions "knocked out."
11. Use **[Ctrl + s]** to save the image back to Vision 10.

Import Options

12. The following import options will be provided when loading image data back into Vision 10 Software:

- The **Prime** dialog will be available for applying either a primer and/or highlight to the image.
- The **Transparent Threshold** dialog will open. Click OK to accept the default value, which is used for controlling visibility of image pixels.
- The **Select Profile** dialog will provide an opportunity to select a new color profile.

Posterization

13. The **Posterization** dialog will now allow you to choose the colors that the image will be reduced to.
14. The top half of the dialog shows the original image before posterization. The bottom half previews the posterization, where **Color 1** is pure black by default.
15. Click **Color 2** and then click a color in the original image.
16. Likewise, click **Color 3** and choose another color in the original image.
17. Continue choosing colors, until the preview has enough colors to appear satisfactory.
18. Increase the tolerance for **Color 1** (black), so that shades of gray are accounted for.

Vectorization

19. Click **OK** to close the **Posterize** dialog, and the image is now ready to be vectorized.
20. Double-click the image to access AccuScan editing mode.
21. At the far-right of the AccuScan SmartBar, choose the vectorization settings from the drop-list.
22. Click the **Vectorization** button.

The bitmap will now be vectorized, and the resulting vector shapes will be grouped.

PhotoMachine

The **PhotoMachine** tools are used to convert a bitmap into a line-traced drawing that can be cut, routed, or engraved.

PhotoMachine styles:

- **None** – Produce a grayscale bitmap
- **Image Cut** – For use with cutters only. Weeding lines for vinyl are produced, where thin bands represent light portions of the bitmap, and thick bands represent dark portions.
- **Wiggle** – For use with low-resolution engravers. Creates a pattern that appears to wiggle across the image.
- **Output Tool Paths** – For use with low resolution engravers. Creates a standard engraving pattern.
- **Squares** – For use with cutters only. A pattern of variable-sized squares is used to depict the image. Smaller squares represent light portions of the bitmap, and larger squares represent dark portions.
- **Stars** – This style is similar to Squares, except that star shapes are used.
- **Rain** – For use with laser-engravers. Creates multiple "falling rain" lines for each pixel.
- **Iron filings** – This style is similar to Rain, except that all lines are created at random angles.
- **3D Image** – Creates a 3D tool path based on the image. For devices that support depth control, the tool path may be used to render a three-dimensional relief image on the loaded material.

Chapter 6

The Production Spooler

In This Section…

- Creating a queue
- Choosing port settings
- Holding and sending jobs automatically
- Inspecting a held job
- Installing a new cutter and updating cutter drivers

About Production Spooler

The Production Spooler is companion software for Vision 10 Software that provides queue management for your cut jobs. Though Vision 10 Software can output a cut job directly to the port that a machine is connected to, this requires Vision 10 Software to monitor that output until the job is complete. Unfortunately, this prevents Vision 10 Software from being used for other tasks, such as working on another design, or setting up the next job that will be output. As a solution, you can output your cut jobs to the Production Spooler application, which is capable of the following:

- When each cut job is received by the Production Spooler, it is held in a queue.
- Optionally, cut jobs can be immediately sent from Production Spooler to the machine. This is enabled for each queue via the Start Queue button.
- Alternatively, the queue can accumulate jobs, until you are ready to begin output.
- After accumulating multiple jobs, you can choose which job to output next.
- When inspecting jobs, there is an on-screen preview.
- You can create extra queue tabs to help you sort jobs according to your own criteria.
- When there is more than one queue tab, Vision 10 Software can send the job to a specific queue tab.

Creating a New Queue Tab

By default, the Production Spooler will have a single queue tab, and the name is "Cutter". When you create extra queue tabs to help organize your job production, it is expected that you will use meaningful names that are easy for you to manage.

When referring to the default queue tab, one would typically describe it as your "Cutter queue." For comparison, if you created a second queue called "Wide Format" (named according to what is sensible to you), then in conversation this would be your "Wide Format queue."

The procedure for creating a queue is as follows:

1. Choose **Queue** menu >> **Manage Queues.**
2. The **Queue Manager** will open.
3. Click the **Add Queue** button.
4. Proceed through the wizard steps to choose the queue settings.
5. When the wizard is finished, the new queue will be listed in the **Queue Manager** dialog.

Choosing the Port Settings

When choosing the port that your machine is connected to, consider the recommendations that are provided by the manufacturer, and the advice that others in your field suggest.

If there are communication issues with the machine, then it is important to confirm that a good quality cable is used. To test a cable, one should swap that cable with one that is know to be working correctly. For example, if the USB cable from that other machine is known to be working, then it would be useful for testing.

Occasionally, there can be cases where the cable connector has been damaged (i.e., either the external connector, or the internal electronics). This can be trickier to diagnose. However, if that machine's cable can be tested on another machine, and that cable appears to be good, then the cable connector might need inspection.

Regardless, to set the output port in Production Spooler, do the following:

1. Choose **Queue** menu >> **Manage Queues.**
2. The **Queue Manager** dialog will open.
3. For the given device, the Port column indicates the output port.
4. Choose a **port** from the drop-list.
5. Once a port has been selected, its properties can be adjusted by clicking [...]

See also: "Choosing the Port" on page 42

Sending Cut Jobs Automatically

By default, queue tabs will hold cut jobs as **Pending**. This gives you a chance to inspect each job before output to the machine. If you want jobs to be immediately output to the machine without inspection, then perform the following:

1. Click the queue tab to indicate which queue you want to modify.
2. Click the **Start Queue** button (A).

If you want to halt the automatic processing of jobs, then click the **Stop Queue button** (B). Held jobs will be listed as Pending.

- If you want to re-start the queue, but have a job that should remain held, then click the **Hold Job** button (C). The job will be listed as Holding.
- For a job that is **Holding**, the **Release Job** button will change the job status to **Pending**.

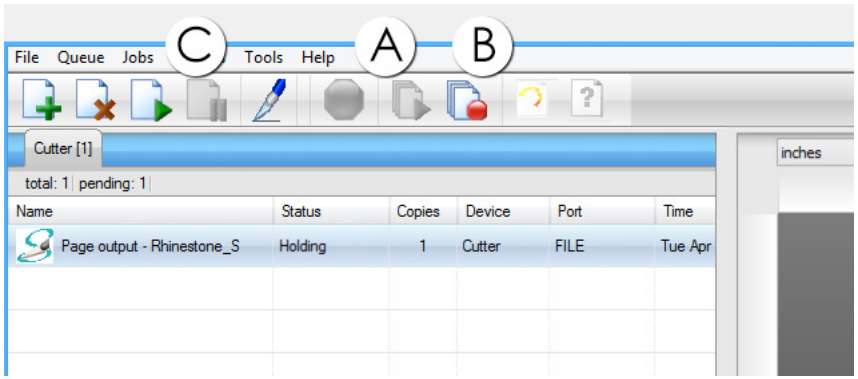

Fig. 113 - The tab indicates the active queue, and the toolbar provides controls for that queue.

Changing the Queue Tab Name

The queue tab name is set within the Queue Properties.

1. Click the queue tab to indicate which queue you want to modify.
2. Choose **Queue** menu >> **Properties**
3. The **Queue Properties** dialog will open.
4. On the **General** tab, change the **Name** as desired.

Adjusting the Queue Properties

When more than one queue has been created, a given queue can be selected by clicking its tab.

1. Select the queue by clicking its tab.
2. To edit the queue properties, click the **Configure Queue** button.

- Alternatively, choose **Queue** menu >> **Properties.**
- Alternatively, double-click the queue tab.

3. The **Queue Properties** dialog will open.
4. Along the left-hand side of the **Queue Properties** dialog, click the category of settings that need to be adjusted.

Inspecting a Held Job

When a job is received in a given queue, the properties of that job are "inherited" from the queue properties. In most cases, there is neither a need to inspect nor modify the job properties. However, in the event of an unexpected device error, then the error log can be inspected within the job properties.

1. Suppose that a job error has occurred, and the job is being held in the active list.

- Alternatively, perhaps the queue has been configured for jobs to be held pending.

2. Right-click the job and choose **Job Properties.**
3. In the **Job Ticket Properties** dialog, choose **Other** >> **Log** tab.

Installing a New Cutter

When creating a new queue, you will be provided with the opportunity to install a machine. However, to install a machine without creating a queue, use the following procedure. This procedure is typically used for modifying an existing queue to use a new device.

1. Choose **Devices** menu >> **Manage Devices.**
2. The **Manage Devices** dialog will list the currently installed machines.
3. Click the **Install Cutter** button.
4. Follow the wizard steps to install your device.

After the new device has been installed, it can be assigned to an existing queue via **Queue** menu >> **Manage Queues.**

Updating the Cutter Drivers

Note: For computers that are not connected to the Internet, it is assumed that you have manually obtained the desired drivers and support files, and have placed them in a directory that the computer can access.

Use the following procedure to update machine drivers and support files that will be used by VPM.

1. Choose **Devices** menu >> **Manage Devices.**
2. The **Manage Devices** dialog will list the currently installed cutters.
3. Click the **Check for Online Updates** button, and available files will be sought from the Vision Software web site.

   Alternatively, if you have placed the drivers and support files locally (e.g., on the hard drive or CD-ROM), then click the **Check for Local Updates** button. In this case, you will be prompted for the location of the files.
4. When file updates are located, click the **Update Devices** button to proceed.
5. When the updates are complete, click **Close**.

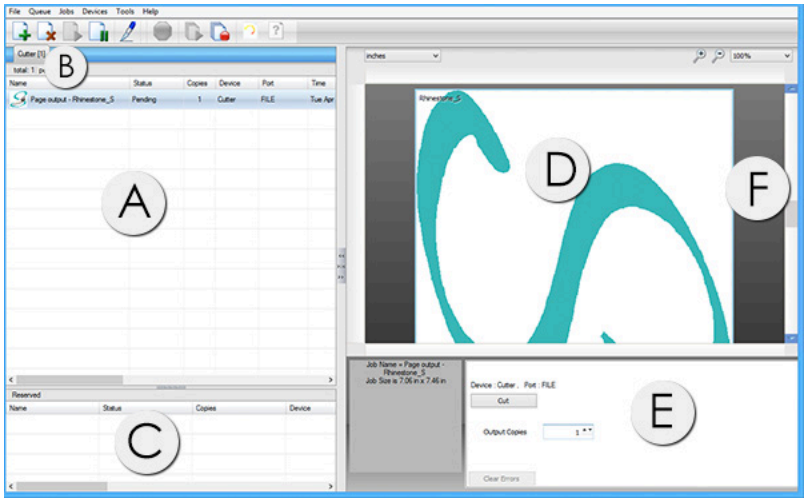

Fig. 114 - In the Production Spooler, jobs are listed on the left, and their layout is previewed on the right.

Chapter 7
The Production Spooler Window

In This Section…

- The window layout
- Toolbar controls
- Menu controls for queues and jobs
- Queue properties

Window Layout

The layout of the Production Spooler (Fig. 114) is generally divided into two main portions, left and right.

Left Side

- On the left-hand side, the list of pending cut jobs are listed within the active queue (A).
- Where there is more than one queue, a queue can be selected by clicking its tab (B).
- If a queue has been configured to send its cut jobs automatically, then cut jobs will be removed upon completion.
- If Job Reserve = ON, then completed cut jobs will remain available in the Reserved List, which is below the active queue (C).

Right Side

- On the right-hand side, there is a preview pane that depicts the job as it will appear upon the media (D).
- Below the preview pane are context-sensitive controls (E).
- When a job is selected, the context-sensitive controls will pertain to that job.
- If you click the media (F), then the context-sensitive controls will pertain to the media.

Toolbar Controls

The toolbar provides at-a-glance queue management, such as holding and releasing jobs, starting/stopping the queue, or querying the machine.

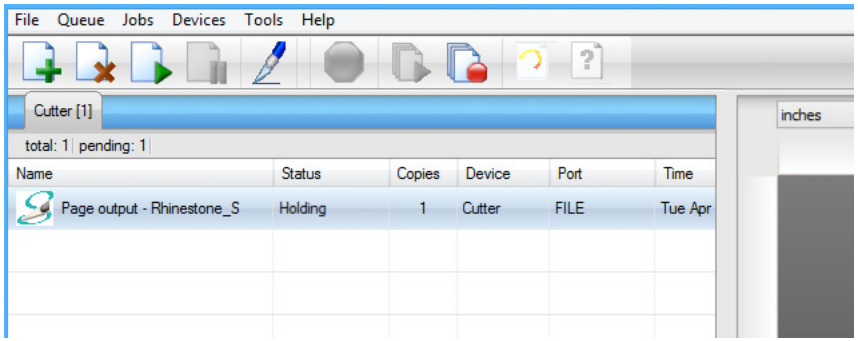

Fig. 115 - Each queue is represented by a tab, and clicking a given tab will make that queue active.

- **Open** - Open a browse dialog and choose a cut file for output. The file will be output via the active queue.
- **Remove Job** - Permanently delete the selected job(s).
- **Release Job** - Release any job that has been held via the **Hold Job** button.
- **Hold Job** – Mark the job as **Holding**, and hold the job regardless of the queue **Start/Stop** settings.
- **Cut Job** - Output the selected job, such as one that is being held Pending.
- **Abort Jobs** - Cease further processing of the job.
- **Start Queue** - When a cut job is received, output that job automatically.
- **Stop Queue** - Hold all received jobs as **Pending**, so that jobs can be inspected before being output.
- **Toggle Job Reserve** – Enable the Job Reserve option in **Queue Properties**, and show the Reserved List (below the active queue).
- **Interrogate Cutter** – Update the **Media width** field (in the context panel).

Queue Menu

The Queue menu contains the basic queue controls.

- **Manage Queues** - Open the **Queue Manager** dialog, which is used to create queues for new cutters, and set the output port for the given device.
  See also: "Creating a New Queue Tab" on page 186
- **Clear Job Errors** - If a problem occurs when cutting (such as no media), then cut job will be put on hold. After the printing problem is resolved, use **Clear Errors** to remove the error flag.
- If a job has encountered an error condition, then the job properties will summarize the errors. The job properties also include a detailed Log of the tasks that were completed before the error was encountered (see the **Log** tab).
- **Properties** - Open the **Queue Properties** dialog.

Jobs menu

When a cut job is received in a queue tab, select that job and choose a command from the Jobs menu.

- **Restore Jobs** - Manage archived cut jobs.
- **Remove** - Delete the selected job.
- **Rename** - Change the job name.
- **Locate Job** - Highlight the job as it appears in the preview pane.
- **Release** - Release a held job for printing. The job status will be changed from **Holding** to **Pending,** and the job will proceed according to the queue settings.
- **Hold** - Stop the job, regardless of whether the queue is stopped. The job status will be Holding.
- **Abort** - Cancel the selected job (i.e., cease sending data to the machine).
- **Clear Error** - If a problem occurs during output (such as no media), the job will be flagged with an error and put on hold. After the problem is resolved, click **Clear Error** to remove the error flag.

If a job has encountered an error condition, then the job properties will summarize the errors. The job properties also include a detailed log of the tasks that were completed before the error was encountered (see the **Log** tab).

- **Add to Layout** - This command is applied to unscheduled jobs (i.e., Reserved List). The given job will be moved into the active queue tab, with its layout shown in the preview pane.
- **Cut** - Begin cutting the job (i.e., send cut data to the machine).
- **Archive to Disk** - Store the job in an archive location, such that it can be restored at a later date.
- **Properties** - Open the **Job Ticket Properties** dialog. Page output refers to the device and its loaded media. Page content refers to the specific cut job.

Devices menu

The Devices menu provides access to the **Manage Devices** dialog, which can install new machine drivers, and update those drivers.

See also: "Installing a New Cutter" on page 189

Queue Properties

The **Queue Properties** dialog is opened via **Queue** menu >> **Properties**

Each queue tab has a set of properties that are automatically applied when jobs are received by that queue.

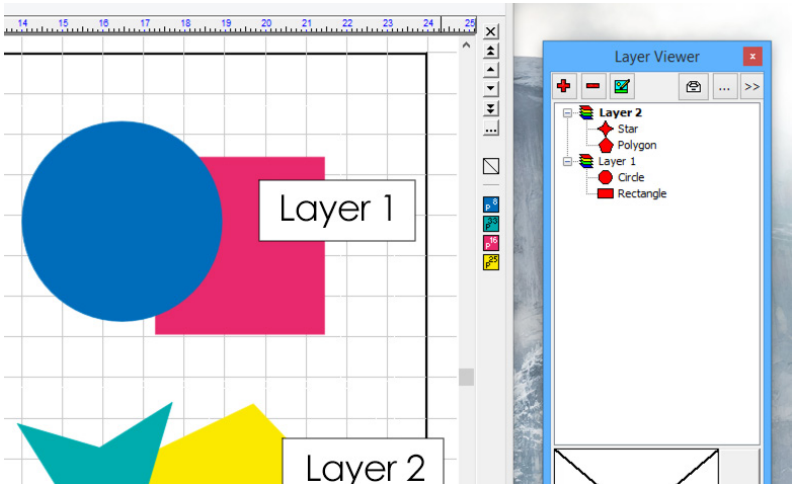

Fig. 116 - For the active queue, the **Queue Properties** dialog is used to configure how jobs are processed when received by that queue.

General Tab

The **General** tab displays the fundamental queue settings, such as the queue name, the type of machine for which jobs are being accumulated, and the substrate color that will be shown in the preview pane.

Job Reserve Tab

The Reserve List is a short list of your frequently cut jobs. This list is at the bottom-left of the Production Spooler window.

If the **Job Reserve** option is enabled, then completed jobs will be automatically stored in the Reserve List.

Log Tab

The log is used to review statistics about cut jobs as they are processed through the queue. In the event of problems, Vision Software Tech Support can use this information to help provide a solution.

History Tab

If enabled, the **History** tab will show the number of jobs processed, any errors, and the total process time of all jobs. The jobs are listed below with their start times, their individual process times, and any errors are noted.

Chapter 8

Rotary Engraving

In This Section…

- Configuring the machine
- Adding Tools Paths
- Previewing the cut job
- Registration marks and cutter alignment
- Tiling jobs to fit media and machine limits
- Filtering cut shapes by color
- Recording the lifetime of the cutting tool
- Estimating time required to complete the job
- Creating weed borders around script lettering

Creating Tool Paths

By default, newly created workspace shapes are treated like simple contour cut paths of zero depth. To define more sophisticated machining paths, either use the:

- Tool Path Tools flyout (Fig. 117)
- Engrave menu >> Create Tool Path flyout

If you use right-click to choose from the Tool Path Tools flyout, then you will automatically apply the same settings as when you previously used the given tool.

Fig. 117 - A: Online, B: Male, C: Female, D: Fill, E: 3D Chisel, F: Drill, G: Drill Contour, H: Drill Center, I: ADA Profile

Online

Defines a basic cutting path for which the tool will follow the edge of a designated shape (Fig. 118). The resulting cut will have an offset of zero. The **Online** tool path is often used to trace shapes in artwork without filling the shapes with an engrave pattern.

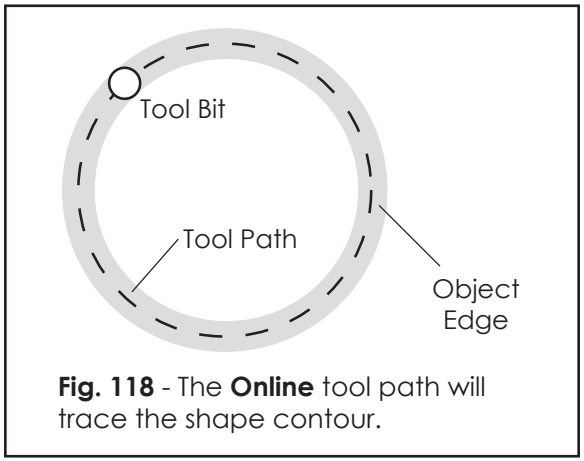

Fig. 118 - The **Online** tool path will trace the shape contour.

Male

Defines a basic cutting path on a selected shape, such that the resulting cut shape will fit within a corresponding female shape (Fig. 119). The tool path will fall to the outside of the shape contour, such that the offset equals one-half of the bit width. The **Male** tool path is typically used to cut shapes out of a material.

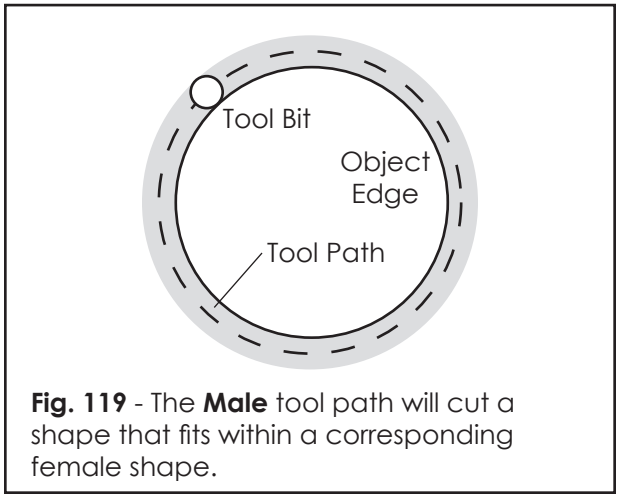

Fig. 119 - The **Male** tool path will cut a shape that fits within a corresponding female shape.

Female

Defines a series of cutting paths on a designated shape, such that the resulting cut shape may contain a corresponding male shape (Fig. 120). For example, consider a polygon shape that is cut using a **Male** tool path, thereby producing a male cut. Suppose then that the same polygon shape is cut using a **Female** tool path, thereby producing a female cut. The male cut will then fit within the inner contour of the female cut.

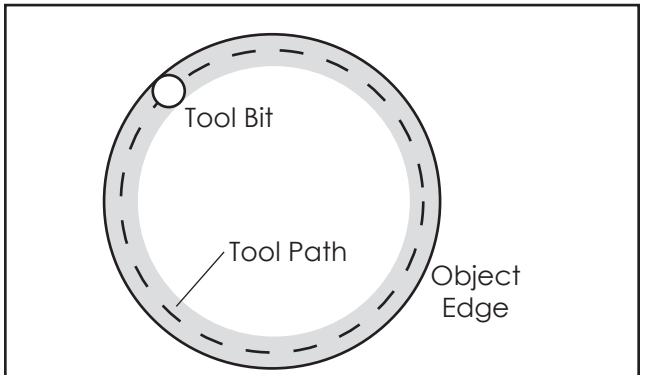

Fig. 120 - The **Female** tool path will cut a shape that contains a corresponding male shape.

Fill

Defines a series of cutting paths designed to remove material from inside a selected shape.

Note that when simply placing one object within another, a fill operation will engrave the outer object without consideration of the inner object. The correct technique is to combine two such objects into a single path, and then the **Fill** tool path operation may be applied. The following steps show how this is done:

Assume that a text logo must be placed within a star shape, all of which must then be filled without losing the text.

1. Create text for the logo. With the text selected, choose **Arrange** menu >> **Text to Graphics**. This will convert the text into a graphic for cutting.
2. Create a star shape that is large enough to contain the logo, and then center the text within the star.

3. With both the text and star selected, choose **Arrange** menu >> **Make Path**. Both objects will now have been combined into a single object.
4. Apply a **Fill** operation to the combined object. The result will be a filled star shape that correctly retains the text that was placed within it.

3D Chisel

Defines a cutting process that varies the depth of a contour tool (usually a conical tool, or a V-bit) along the defined path. The width of the cut path varies with the depth of the tool path. This type of cutting is used to create a "hand carved" effect.

Drill

The Drill tool is used to place drill points upon the workspace. Simply left-click on the workspace to place a drill point. For a selected drill point, its **Depth** is editable from the SmartBar.

Drill Contour

The Drill Contour tool will lay a series of drill points along the contour of an object or group of objects.

- **Number** indicates the number of drill points that will be spaced evenly along the contour of the selected object.
- **Distance** between points is used to space drill points evenly along the contour of the object.
- **Offset** is used with the Distance option to indicate an initial gap before drill points are placed. After the gap, drill points will be spaced according to the Distance value.
- **Nodes** represent the coordinates that are used for rendering the object on the computer screen. Use this option to place drill points according to each node. This feature is especially useful when used with polygons.
- **Nodes and Distance** will begin by placing drill points according to each node of the object. Additional drill points are then placed according to the distance.

Drill Center

The **Drill Center** tool will place a drill point in the center of the selected object. If more than one object is selected, then a drill point will be placed at the center of each object.

Registration Marks

Registration marks are typically used in the following manner:

- Where multiple layers of vinyl are being used to compose a sign fascia, create registration marks to help with alignment of each layer.
- When loading printed media into the cutter, some cutter models have a sensor that can recognize the registration marks and align the job automatically. For cutters that do not include a sensor, the operator will be prompted to manually align the cutter tool with each registration mark.
- For a sheet a material, a registration mark can be used as a point of reference that will be used to position subsequent jobs (see also Plotter Jog).

Locations of Registration Mark Tools

A) From the **Shape Tools** flyout, the **Registration Mark** tool is used to manually place registration marks about the artwork.

B) From the **Shape Tools** flyout, the **Multi-Registration Mark** tool is used to manually offset registration marks about the artwork.

C) In **Engrave Preview** mode, the **Cut Toolbox** has a **Registration Mark** button.

Right-click this button to choose the position, size, and offset of the registration marks.

Left-click this button to place the specific type of registration marks.

Plotter Jog

Note: This feature requires that the machine be connected to the computer via a serial (COMM) port cable and connector.

Plotter jog is the ability to position the cutter head by using the **Jog** dialog controls in Vision 10 Software. This feature is typically used to reduce wasted material by cutting new shapes within unused sections of media.

1. Choose **Engrave** menu >> **Engraving Defaults.**
2. From the **Output** dialog, tick the **Jog** checkbox.
3. At this point, either use the **Shape Tools** flyout to add registration marks, or add registration marks in Engrave Preview mode.
4. Choose **Engrave** menu >> **Output.**
5. At the far-right of the **Cut Toolbox,** click the **Engrave** button.
6. The **Jog** dialog will open, and the tool can be positioned for each registration mark.

Tile Settings

If the design exceeds the limits of either the machine or material, then the job must be divided into tiles that can be output as separate jobs. If tiles can be repositioned to all fit within the available material, then they can be completed as a single job.

When creating a design, the dimensions of the loaded material should be considered, and one should be mindful of the maximum physical limits of the machine, as indicated by the Operator Manual that was provided with the machine.

Creating tiles in Engrave Preview mode

1. Choose **Engrave** menu >> **Output.**
2. In the **Cut Toolbox**, click the **Tile** button.
3. A dashed rectangular bounds will appear around the design.
4. Move the cursor over an edge of the bounds, such that the cursor becomes a bidirectional arrow.
5. Click-and-drag to create a tile line. Both vertical and horizontal tile lines can be created in this fashion.
6. After the tile lines have been created, it is possible to select only some of the tiles for printing.
7. For example, tiles can be clicked, such that only tiles with an 'X' will be cut.
8. However, if none of the tiles have an 'X', then ALL of the tiles will be cut.
9. Click **Apply** to finish editing the tiles.
10. The individual tiles can now be repositioned via click-dragging.

Filter By Color

The **Filter By Color** option is used to send only one color layer as output to the machine. For example, tool operations can be differentiated according to the color assigned to each type of tooling operation.

Filtering by color can be enabled as follows:

A) **Engrave** menu >> **Engraving Defaults**

Tick the **Engrave by Color** checkbox. This will cause the **Filter by Color** dialog to automatically open in the **Engrave Preview** state.

B) **Engrave** menu >> **Output**

From the **Cut Toolbox**, click the **Filter by Color** button.

Filter by Color Dialog

When prompted by the **Filter by Color** dialog (Fig. 121), choose the next color that will be output. As each color is completed, you will be prompted for the next color.

Optionally, a given color layer can be output more than once.

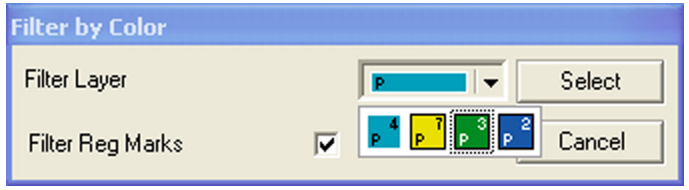

Fig. 121 - Use the **Filter Layer** to choose the color that will be output, and then click the **Select** button. If the **Filter Registration Marks** option is enabled, then registration marks will be cut with all layers.

Output Tool Usage

Engrave menu >> **Output Tool Usage**

Output Tool Usage is an estimation tool that collects statistical information about the performance of the tools being used in cutting or plotting. A variety of data is gathered about each tool, such as the overall distance traveled, the number of jobs completed, and the date of the last tool change. Using this data, comparisons between successive tools may be used to make an informed decision about when tools are likely to decline significantly in performance. Tools may then be replaced in advance of this decline, thereby preventing materials from being wasted by an old tool.

Estimate Time for Current Job

When using this option, be prepared to record the approximate time that is needed to complete the next cutting job. After the job is completed, you will be asked to enter the time that was expended in completing the job.

Note: From the **Help** menu, the **TimeSign** feature can be used to record the expended time.

Once the expended time has been set, use **Engrave** menu >> **Show Traveled Distance** to estimate how much time will be required to cut other jobs. By using this estimate, you can better manage your own time, since you will be able to work on other tasks and return when the current job is complete.

Weed and Power Weed

Shape Tools flyout >> **Weed Border**

Shape Tools flyout >> **Power Weed**

Note: Weed lines will not cut into a given shape.

Weeding is used with cut vinyl applications, where the cut shape must be peeled away from its backing. When peeling a vinyl shape, the risk is that it doesn't pull easily from the backing, which can result in unexpected stretching of the vinyl. This is particularly problematic with small text shapes.

To avoid stretched vinyl, a weed border may be created, which is essentially an extra rectangular cut around the shape. Once cutting is done, the rectangular cut can be peeled away, followed by the inner shape.

Power Weed is like the Weed Border tool, except that additional weed lines can be dragged from the edges of the border. Such additional weed lines are typically used to bisect text shapes.

Appendix A

Updating Your Software

Updates from the Manufacturer

Over time, your engraver manufacturer may release an updated device driver for your machine (certain laser engravers use a printer driver, instead of a device driver). Typically, obtaining and installing such updates are recommended because they include fixes and improvements to how your computer communicates data to the machine.

Update the driver as follows:

1. Go to the manufacturer web site, and search their support section for files and information about your specific engraver model.
2. For the latest drivers that are available, there should be a version number listed, along with instructions to determine what version is currently being used by your machine.
3. If there is a more current driver available for your machine, then follow the instructions provided for performing the update.

Updates from Vision Software

For engravers that use a device driver, Vision Software provides a cutter driver that is required in addition to the manufacturer device driver. This cutter driver would have been installed when configuring Vision 10 Software.

Periodically, Vision Software may release an updated cutter driver that supports improvements within the manufacturer device driver. The cutter driver may also have optimizations that are intended to improve the engraver performance.

Update your Vision 10 Software as follows:

1. From the Windows **Start** menu, go to the collection of Vision 10 Software shortcuts that were provided, and choose **Update Vision 10**
2. After updates have completed, launch Vision 10 Software.
3. Choose **File** menu >> **Install Cutter Devices**
4. A wizard will guide you to indicate what cutter drivers should be available (this will update your drivers).
5. After installing your cutter drivers, choose **Help** menu >> **Update License** File to keep your license current.

Appendix B
Hot Keys and Shortcuts

In This Section…

- Keyboard menu shortcuts
- Function keys
- Hot keys for aligning shapes
- Node palette
- The grid and align palette
- Node editing hot keys
- Color palette tips, and color substitutions
- Selecting and manipulating shapes

Keyboard Menu Shortcuts

Vision 10 Software menus have keyboard shortcuts that will reduce your editing time. These shortcuts are listed next to each menu item, and they can be customized via **Options** menu >> **Customize Shortcuts**

Function Keys

The function keys in Vision 10 Software operate as follows:

[F1]	Help
[F2]	Disable all Shop Palette color layers except the current target layer
[F3]	Select all objects
[F4]	Refresh the workspace
[F5]	Zoom marquee
[F6]	Zoom out
[Shift+F6]	Zoom in
[F7]	Zoom to selected object
[F8]	Zoom to Plate Size
[F9]	Toggle between current and previous zoom levels

[F10]	Select the menu bar

Align Selected Shapes

To align selected shapes quickly, use the following hot keys:

[ALT + 1]	Align shapes along left edge of bounds
[ALT + 2]	Center shapes vertically
[ALT + 3]	Align shapes along right edge of bounds
[ALT + 4]	Align shapes along top edge of bounds
[ALT + 5]	Center shapes horizontally
[ALT + 6]	Align shapes along bottom edge of bounds
[ALT + 7]	Center shapes both horizontally and vertically

Align Shapes to the Plate Size

To align shapes to the plate size, use the following hot keys. Most of these correspond to **Layout** menu >> **Arrange and Distribute** >> **Align to Plate.**

[ALT + Delete]	**Left** – Align with left edge of plate
[ALT + Page Down]	**Right** – Align with right edge of plate
[ALT + Insert]	**Top** – Align with top edge of plate
[ALT + Page Up]	**Bottom** – Align with bottom of plate
<no default>	**Center** – Align with center of the plate.
[ALT + End]	**Center Horizontally** – Center horizontally along height of plate
[ALT + Home]	**Center Vertically** – Center vertically along width of plate
[Ctrl + Q]	**Equal Spacing** – Space text objects equally over height and width of plate.
<no default>	**Equal Vertical Spacing** – Space text objects vertically across plate.
<no default>	**Equal Horizontal Spacing** – Space text objects horizontally across plate.

Align Shapes to Last Selected Object

When using **[Shift]** to select a collection of objects, the following hot keys will align shapes to most recently selected object"

[L]	**Left** – Align with the left edge of the last object.
[R]	**Right** – Align with the right edge of the last object.
[T]	**Top** – Align with the top edge of the last object.
[B]	**Bottom** – Align with the bottom edge of the last object.
[E]	**Horizontally** – Center horizontally along height of last object.
[C]	**Vertically** – Center vertically along width of last object.

Node Editing

When node editing a polygon or polyarc object, clicking the fill region of another object will switch node editing to the other shape. When node editing an object that overlaps another object, hold the **[ALT]** key to prevent the accidental selection of the underlying object.

The Node Palette

When editing a polygon or polyarc object, pressing the right-mouse button will access the **Node Palette**, which provides commonly used tools for changing node type, joining and breaking nodes, and setting the start point and direction for routers and engravers.

Please note that since polyarc objects are composed only of curve nodes, the **Node Palette** will not allow you to change the node type for polyarcs (Fig. 122).

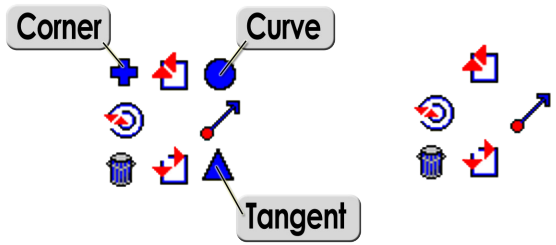

Fig. 122 - The **Node Palette** as it appears for polygon shapes (left), and polyarc shapes (right). Polygons can have Corner, Curve and Tangent nodes, whereas polyarcs use only Curve nodes.

Polygon Editing Hot Keys

In addition to the **Node Palette**, the following keyboard hot keys are available when editing polygon objects:

(A) Add node – Create node at current cursor location.

(C) Change node – Cycle type of selected node. Type will cycle through Corner, Curve, and Tangent.

(R) Remove – Delete the selected node.

(L) Locate origin – Set grid origin to selected node.

(G) Grid dimensions – Set the grid size as the distance between the selected node and the grid origin.

(S) Snap to intersection – Move selected node to the nearest grid intersection.

(H) Snap to horizontal grid line – Move node to the nearest horizontal grid line.

(V) Snap to vertical grid line – Move node to the nearest vertical grid line.

(J) Join – Join two nodes with a connecting line.

(B) Break – Break contour at selected node.

[F3] – Select all nodes.

[ALT + F3] – Inverse selects all nodes.

(U) Alternate Select – Select every other node of currently selected nodes.

(D) Deselect – Clear the current node selection.

(O) Create perfect circle – Form nodes into a perfect circle.

(T) Toggle start point – Set the start point for routing or engraving this object.

(K) Click – Select the node under the mouse cursor.

Polyarc Editing Hot Keys

In addition to the **Node Palette**, the following keyboard hot keys are available when editing polygon objects:

(A) Add node – Create node at current cursor location.

(R) Remove – Delete selected node.

(L) Locate origin – Set grid origin to selected node.

(G) Grid dimensions – Set the grid size as the distance between the selected node and the grid origin.

(S) Snap to intersection – Move selected node to nearest grid intersection.

(H) Snap to horizontal grid line – Move selected node to nearest horizontal grid line.

(V) Snap to vertical grid line – Move selected node to nearest vertical grid line.

(J) Join – Join two nodes with a connecting line.

(B) Break – Break contour at selected node.

[F3] – Select all nodes.

[ALT + F3] – Inverse selects all nodes.

(U) Alternate Select – Select every other node of currently selected nodes.

(T) Toggle start point – Set start point for routing or engraving this object.

Bézier Editing Hot Keys

In addition to the **Node Palette**, the following keyboard hot keys are available when editing Bézier objects:

(A) Add node – Create node at current cursor location.

(B) Break – Break contour at selected node.

(C) Change node – Cycle type of selected node, though ignore node types that would change the curve (i.e., don't use a corner node to represent a smooth curve).

(G) Grid dimensions – Set the grid size as the distance between the selected node and the grid origin.

(H) Snap to horizontal grid line – Move selected node to nearest horizontal grid line.

(I) Insert node – For two-or-more selected nodes, insert an intervening node.

(J) Join – Join two nodes with a connecting line.

(L) Locate origin – Set grid origin to selected node.

(R) Remove – Delete the selected node.

(S) Snap to intersection – Move selected node to the nearest grid intersection.

(U) Alternate Select – Select every other node of currently selected nodes.

(V) Snap to vertical grid line – Move selected node to nearest vertical grid line.

Color Palette Tips

When clicking a color in the Shop palette (or Job palette), additional tools are activated by pressing the [Shift], [Control], or [ALT] keys. The following table summarizes these modifiers:

- **Left-click** – Set fill color of current object
- **Right-click** – Set line style color of current object
- **[Shift] + Left-click** – Select all objects of that fill color
- **[Control] + Left-click** – Disable the color plate. All objects with that fill color will appear as dashed outlines.
- **[ALT] + Left-click** – Disable all color plates, except for the plate that was clicked

Job Palette Substitutions

In addition to listing colors, the **Job Palette** can be used to perform global search-and-replace of colors, primers, halftones, etc.

Set all red shapes to a blue fill color

1. Suppose that you have several red shapes
2. In the Job Palette, click [...] and choose **Color View**
3. Note that the red color appears in the Job Palette
4. From the Shop Palette, drag a blue color plate and drop it onto the red Job Palette color

Replace all shades of a spot color

1. Suppose that you have five shapes with different tints of a gold spot color, say 100%, 80%, 60%, 40%, and 20% tint
2. In the Job Palette, click [...] and choose **Foil View**
3. Note that the Job Palette lists the different shades of gold as a single color plate
4. From the Shop Palette, drag a green spot color and drop it onto the gold Job Palette color

Selecting and Manipulating Shapes

To select a shape, click within the fill area of the shape. If **Show Fills** is off (under the **View** menu), then select the shape by clicking along its contour.

If the **[ALT]** key is used as a modifier key, then the shape will only become selected by clicking along its contour. This is a useful means of differentiating from between several clustered shapes.

Sweep Selecting Objects

A sweep select is simply a quick means of selecting several objects by surrounding the objects with a marquee. Modifier keys may also be used as follows:

Shift-sweep Select

- Add the objects to the current selection.

Control-sweep Select

- All objects that fall within bounds of the marquee will become selected. The current editing operation (if any) will be applied to the objects.

Alt-sweep Select

- For small objects that are within the area of a larger object, use **[ALT]** + marquee to select the small objects without selecting the larger object.

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