

AFINIA LABEL

DirectCut Quick Guide

Technical Support Bulletin

Installation and Documentation

Abstract: The DirectCut printer driver for XP, Vista, Windows 7, 8\8.1, and 10 is a full job-process management program. You control the output you need. Multiple copies, Step and repeats, Job to job spacing, Mirror image, rotate, weed border, object sorting and loop (cut path) direction. Operating systems prior to Windows XP are not supported.

Tested with vector drawing programs such as: AllenCAD, CorelDRAW 10-x6, Adobe Illustrator 10-cc7, AutoCAD 2002, PowerCAD, MonumentCAD, Flexisign, Gerber Omega, Monu-CAD, inkscape and Signlab. Bitmaps or raster images sent to driver by these programs will be ignored.

Will not work with bitmap programs like: Word, Paint, Freehand.

Automatic Installation Instructions

- Run DLF-1100_Setup.exe for full installation of DirectCut, Remote Panel, and documentation.
- Turn on your Cutter and connect the cable provided with the cutter to an USB port, Ethernet port, com port, or USB to serial port.
Note: If you are using a serial port or USB to serial converter the rs232 cable provided has special wiring that is not available at local stores and must be purchased from your distributor.
Note: Most new computers do not have serial ports and will require the USB, Ethernet, or USB to serial converter.
- The Enable Printer Driver program is left running.
- If you have your cutter connected to LPT, File Output or the cutter is attached to another computer, the hardware does not support find cutter. In this case you will need to call Afinia Label to enable your printer driver. Please have challenge number on this screen available.
- Click **Find Cutter** to locate the cutter on your machine.
- Click **Install Driver** to install the printer driver.

The cutter driver supports sending completed files through the network to a cutter connected to another machine. After installing the cutter on the machine to which it is connected, follow instruction of network installation that appear later in this manual.

DirectCut Properties

Click the Preferences button to access the DirectCut Properties.

A + in front of any property indicates sub-properties. Click the + to show those sub-properties.

Properties that are headed in **Blue** are by default hidden from the Properties list. These properties can be made visible by marking the properties in the DirectCut Options application.

Paper Size

Selecting the paper size is not necessary for operating the DLF-1100.

Copy Count

The setting allows specifying more than one copy of the output to be cut. Only one copy is sent to the cutter unless a different number is specified. If you have copy count set to 6 and Copies/Row set to 2 then you will get 6 copies of the image in a 2 across and 3 rows of images.

Print Quality / Resolution

Normally you do not need higher resolution than 1016 dpi.

Setting the resolution higher may result in better curved cuts, but will take more time to process.

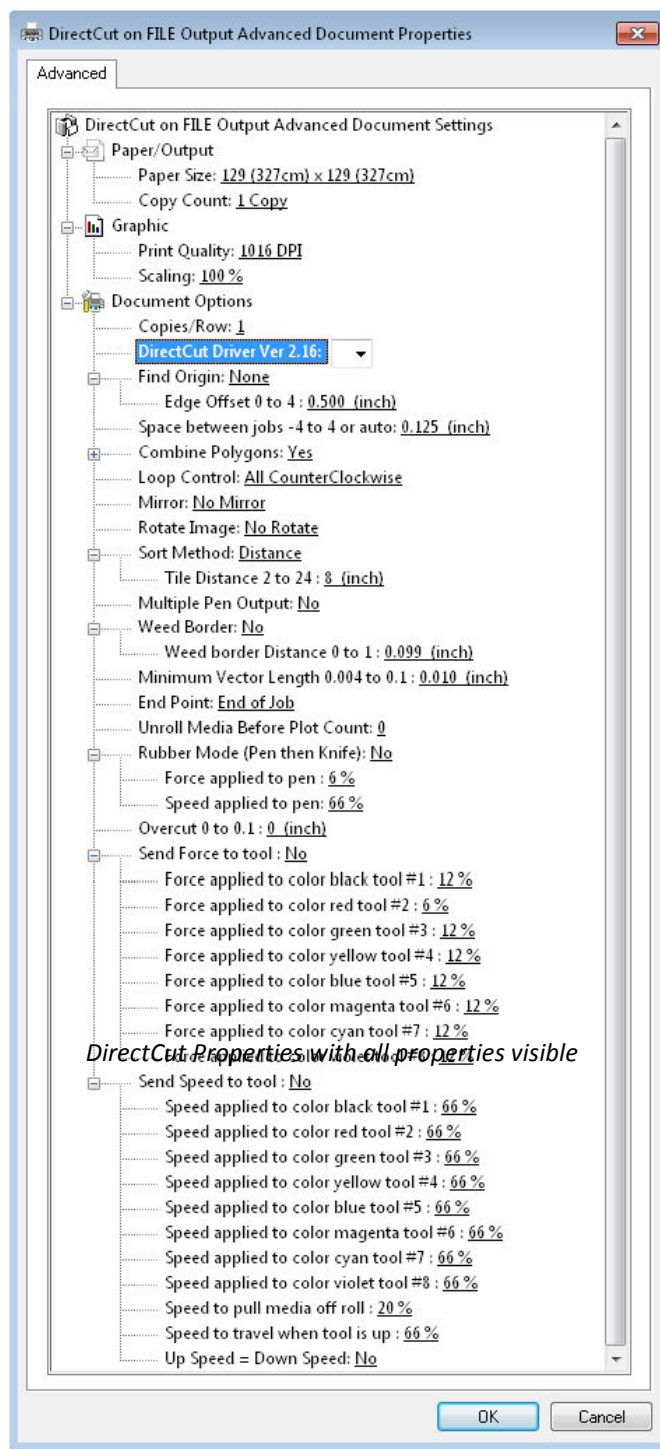
Scaling

This setting changes the final size of the objects cut on the cutter.

Note: Scaling that would make the cut path wider than 8.5" is not supported.

Copies / Row

This allows multiple copies of the image to appear side by side in the y-axis. The space between jobs controls the distance between the jobs. This allows for step and repeat of a single cut pattern to be applied multiple times in a single frame. The total copy count is divided by the pages per sheet so copy count is the number of copies of the pattern to cut.



Find Origin

Use this option to interface with the SmartMark sensor for cutting printed labels.

- **None** sends no find origin command. Job origin is placed at the carriage after a joystick move.
- **Origin** sends the find origin command and does an alignment with the visual sensor at the origin only.
- **Origin, Skew** sends the find origin command with 0 for the x parameter and the largest y coordinate in the job. This does alignment at the origin and rotation using the skew point.
- **Origin, Skew, Scale** sends the find origin command with the largest x coordinate in the job and largest y coordinate in the job. This does alignment at the origin, rotation at the skew point and scaling at the scale point.
- **Origin, Scale** sends the find origin command with the largest x coordinate in the job and zero for the y coordinate in the job. This does alignment at the origin, rotation at the scale point and x-axis only scaling at the scale point. It assumes that the scaling in the y-axis is correct.
- **Edge** is used only when cutting blank labels on unprinted material. By selecting EDGE in the driver's printing preferences menu, the SmartMark sensor will detect the edge of the media instead of a registration mark, then offset into the media by that amount and cut your blank labels. Edge sends the find edge command with the edge offset specified. For use with unprinted stock on DFS only to align the cut with the edge of the media.

Note: Weed Border must be set to **Off** to use **Find Origin** with SmartMark.

Edge offset

This option is used with the Find Origin **Edge** method to specify the offset between the edge of the media and the cut line.

This setting combines with any **Y Offset** entered into the Remote Panel application.

Space between jobs

The space between jobs tells the system how far to advance the cutting head in order to find the next frames Origin SmartMark. It is the distance between the last cut of the previous frame to the leading edge of the target of the next frame.

You can also set the Space between jobs to **Auto**. After the first Cut is sent, the DLF-1100 will locate the next SmartMark and automatically calculate the space between jobs.

This setting is combined with the Space between Jobs setting in the Remote Panel.

Combine Polygons

If your CAD system does not combine all the points of an object together into a single object (for example, PowerCAD, MonumentCAD, and AutoCAD do not) you should set this option to **Yes** to improve cut quality. The driver will analyze the polygons in the print job and combine the polygons together. Three options are available: **copy 1st to end of 2nd**, **copy 1st to end of 2nd reversing direction**, and **reverse direction of 1st and copy 2nd**.

For large jobs this process can take several minutes.

Same Point Distance

This option works with Combine Polygons set to **Yes**. The variable controls how far away the combine polygon algorithm looks for an end point to decide if the point is the same point. A value of 0 will only consider points that are coincident to be the same. A value of 25 is about 1/8 of an inch (3 mm).

Loop Control

Default is **All Counter Clockwise**, which traverses all loops counterclockwise. **All Clockwise** traverses all loops clockwise. Cut quality can improve on some media by making all loops the same direction.

Mirror

This option allows cutting a mirror image of the job. For example if you want to put letters on the inside of a window you can mirror the image and it will appear correct when viewed from the outside of the building.

Rotate Image

In the preview window, select DFS origin. This moves the origin to the upper right on the screen. This matches the view you see when you look at the printed roll from the front of the DLF-1100. Use the rotate selection in the properties until the origin registration cut or L cut is in the upper right corner of the preview screen. Select rotation from **none**, **90°**, **180°**, or **270°**.

Sort Method

Default: Distance. Distance sort minimizes pen up movement. Increasing X sorts loops by increasing max x coordinate value in loop. Distance sort takes more computer time (n^2) than Increasing X sort ($n \log n$).

- **Increasing X** sort minimizes x movement during the plot. You can use this option to improve repeatability.
- **Distance** sort minimizes the time it takes to cut the job. This sort finds the next closest object to cut. Since pen up time is minimized this is the fastest the job will cut.
- **Closest** is similar to Distance except that it looks within a closed object for closest point within the object. This method takes the most computer time in that it does (n^2 comparisons where n is the number of points rather than number of objects). On slow computers and large drawings this can take several minutes or longer.

- **Distance No Color** allows changing pen speed and force within a single object. It is identical to distance except pen color is ignored. Also if this method is used the color violet is not output to cutter.
- **Tiled** is not used on the Afinia DLF-1100.

Multiple Pen Output

This property is not supported for use with the DLF-1100.

Weed Border

This option adds a weeding border cut space between jobs outside of the maximum dimensions of the image being cut. This increases the size of the image by 2 times the Weed border distance.

Note: This option is not compatible with Find Origin. Weed border should be set off if Find Origin is on.

- Weed border distance is the amount of increased image size the weed border expands the image. Range 0 to 1 inch (0 to 2.54 (cm)). Units of measure can be selected from control panel, regional and language options, customize, measurement system.

Minimum Vector Length

Some CAD programs output too many vectors or an inconsistent number of vectors depending on the object. This feature allows outputting more vectors than are needed and having the driver space the points along an arc based on the distance and the angle between vectors. Range 0.004 to 0.1 inches (0.01 to 0.25 (cm)). Units of measure can be selected from control panel, regional and language options, customize, measurement system.

End Point

This option allows selecting either “End of Job” or “Origin”. Selecting “End of Job” moves the knife to the end of cut. Selecting Origin leaves the cutting head at the beginning of the job.

Unroll Media Before Plot Count

Selecting 0 starts job without moving media. Selecting 1 causes the cutter to move the media forward to the end of the job so that the cutter does not pull media off the roll in the middle of a job. See also Speed to pull media off roll. Selecting > 1 causes the cutter to move the media forward so that the cutter does not pull media off the roll in the middle of the job. In addition it moves the media through the grit roller the selected number of times before starting the job. This function is necessary when using a template cutter to achieve optimal registration.

Recommendations:

Set to 0 for DFS, 0 for QuickSand, 1 for vinyl/rubber cutters and 2 or greater for template makers. Default is 0 after installation. A count of 3 will move the media forward and back 3 times before plotting.

Rubber Mode

This property is not used with the DLF-1100.

Send Force to tool

Setting this to **Yes** allows you specify a percentage to override the default cutting force of 20% on the cutter.

The cutting force is shown on the cutter display, which can be changed on the cutter during operation or by changing the force in the Remote Panel application.

Force Applied for each tool

As the DLF-1100 does not have multiple knives, only the first knife force can be set.

Send Speed to tool

Setting this to **Yes** allows you specify a percentage to override the default cutting speed of 100% on the cutter.

The cutting speed is shown on the cutter display, which can be changed on the cutter during operation or by changing the speed in the Remote Panel application.

Speed Applied for each tool

Only the first knife is used with the DLF-1100.

Speed to pull media off roll

If the send speed to tool is turned on, the specified velocity for unrolling media is used when feeding media through the input accumulator.

Speed to travel when tool is up

This is the speed the motors will travel when the tool is not in contact with the media.

Up speed = Down speed

When set to **Yes**, the cutter ignores the Speed to travel when tool is up parameter. The Down speed will be used for the Up speed.

Output Polyline Encoded

By default the driver outputs data in non-Polyline encoded (uncompressed) format.

Debug

Off no debug is output

On debug is sent to c:\temp\cutter.wri and c:\temp\cutui.wri

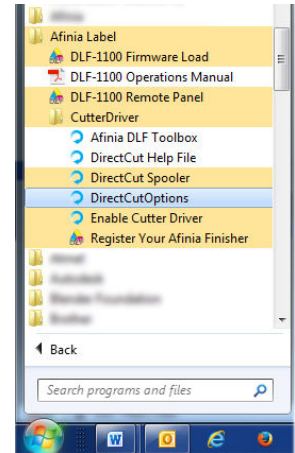
On Page – Debug is turn on during DrvSendPage

Setting Debug to **On** will increase the processing time dramatically

DirectCut Options Application

This program allows you to change the displayed features of the DirectCut printer driver. A property with a check in front of it will be displayed in DirectCut. Unchecking a property will hide that option. This allows for simplifying the user interface by only showing the properties that you need to change.

To open the DirectCut Options application, click the **Start -> All Programs -> Afinia Label -> Cutter Driver -> DirectCut Options** link.



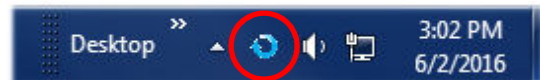
Changing units of measure (Metric, English) in Printing Preferences

The units of measure used inside the printing preference box is controlled by the Regional and Language Options in the Windows Control Panel. In Windows XP click on Start -> Control Panel -> Regional and Language Options. On the Regional Options page click on Customize. On the Numbers page change the measurement system from U.S. to Metric or vice versa to set the units of measure. All other measurements in a CAD programs print menu are controlled by a setting in the preferences or options of that CAD system. Suggest using the help menu or contacting CAD manufacturer to set measurement systems.

DLF Toolbox Application

Clearing the Print Queue

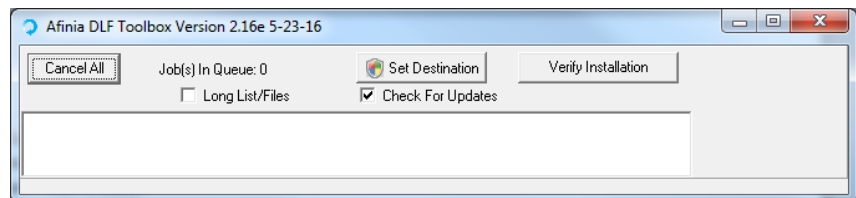
To access the spooler using the DLF Toolbox, click the service icon in the tool tray in the lower right corner of the Task bar (you may need to click the up arrow to the right of the Desktop label).



This will display the spooler user interface. The icon rotates when there is a job in the queue.

Due to a bug in Microsoft's spooler, data is not sent with flow control. As a result E056 errors were displayed on the cutter and corrupted data was sent to the cutter causing unpredictable results.

To clean the print queue, click on the DLF Toolbox icon in the tool tray.



Click the **Cancel All** button to clear the queue.

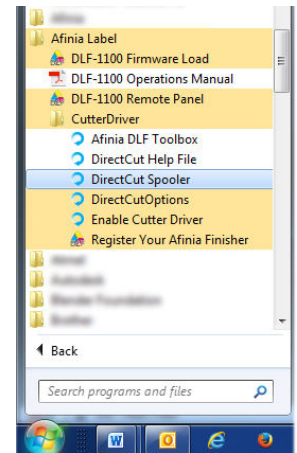
The queue is located in the C:\Program Files\Afinia Label\cutter driver\queue directory. Files must be in the form of {Allen COMx | Allen LPTx | Allen File} Name. E.g. "Allen COM4 0001", "Allen LPT2 0003", "Allen File Output 0004". A space must appear in the file name after the port name.

Verify Installation

Several customers have installed other programs that make the Spooler not work. Others have changed critical settings on the cutter driver. On boot the program now checks for these conditions, issues a warning and offers to fix the problem if it can. The “Verify Installation” button performs this test at any time without rebooting.

The spooler is a service and cannot be closed manually. If closed while sending data unpredictable results will be sent to the port.

To restart the spooler, click the **Start Menu -> Afinia Label -> Cutter Driver -> DirectCut Spooler** link.



Networked Installation of Cutter Driver

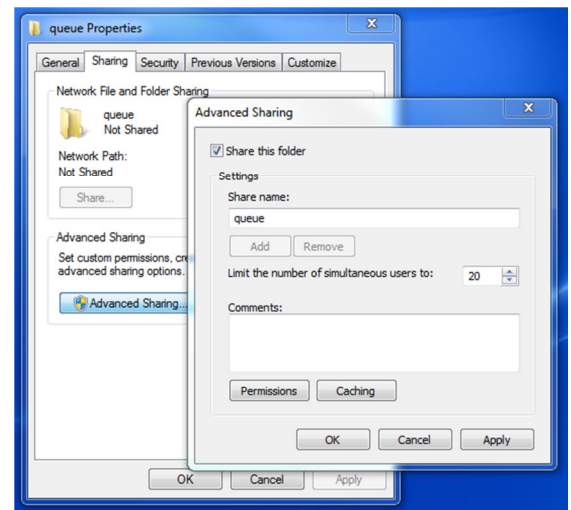
If you have networked computers you can specify the destination directory of the queue on the computer that is connected to the cutter.

First using Windows Explorer (Right click on start and select explore) on the destination computer find the following directory:

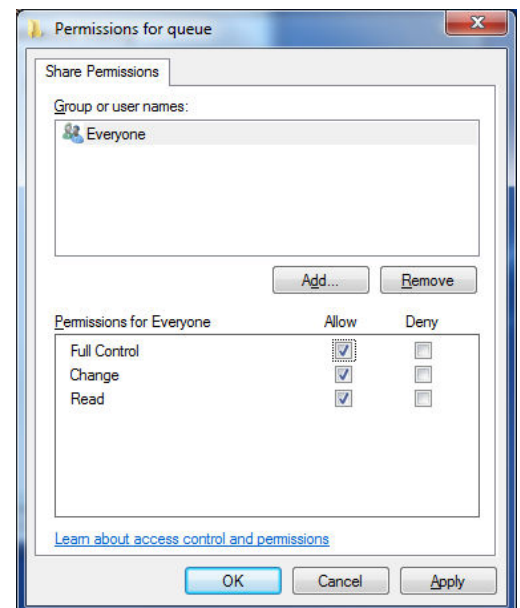
C:\Program Files\Afinia Label\cutter driver\queue

Right click on queue folder and select Share With and Advanced Sharing.

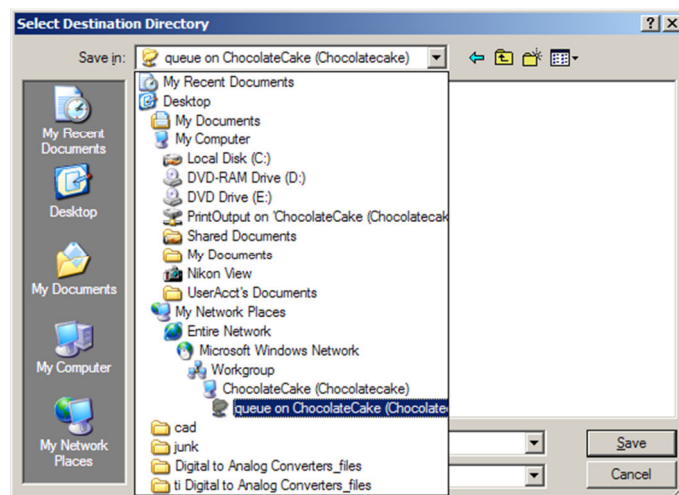
Check Share this folder, then click **Permissions**.



Set any users that will need access to the queue directory to **Full Control** and click **OK**.



Next, click the Allen Spooler task on the task bar of the client computer and click the **Set Destination** button. Click yes you want to change the directory. Click on My Network Places on the left bar and locate the queue directory on the network.



Click the **Save** button.

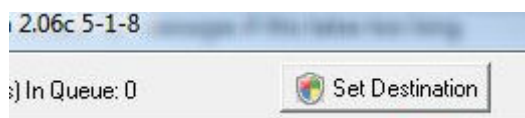
On the computer that is directly connected to the cutter (master computer) find the com port that the cutter has been assigned.

On each of the other computers to be connected (client computers) run **Start -> All Programs -> Afinia Label -> Cutter Driver -> Enable Cutter Driver**. Select the COM port found on the master computer. Answer **No** to auto install question.

Click the **install driver** button.

Open the spooler on each client computer.

Click **Set Destination**



Select the shared directory on the master computer.

The spooler on each client computer will first write a file to the local queue. That file will then be transferred to the master computer by the local spooler. The master computer spooler will then send the file to the cutter.

Enable Print Driver Application

Finding Cutter, Enabling Printer Driver

Click the **Start Menu -> Afinia Label -> Cutter Driver -> Enable Cutter Driver** link.

Click the **Find Cutter** button with cutter(s) powered on and connected. Then click **Install Driver** to check the driver installation.

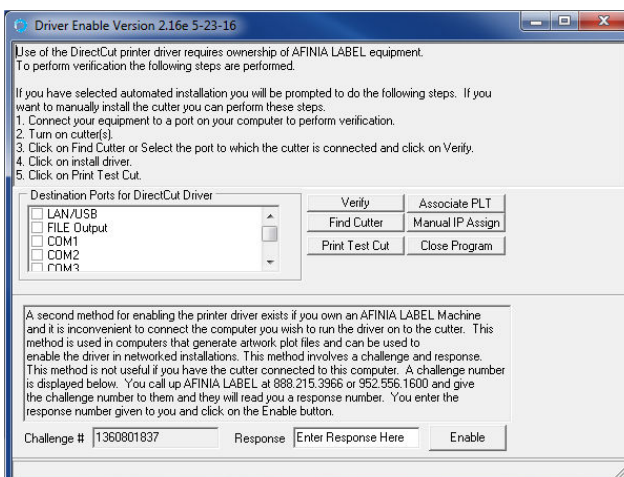
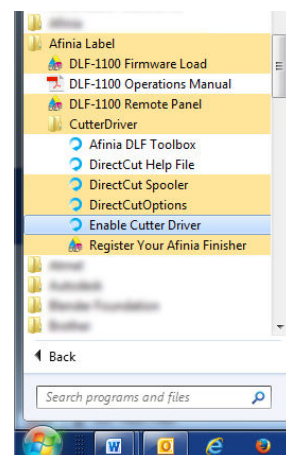
Note: if a new driver is installed, the printer preferences will be set to factory defaults.

Auto Install performs a find cutter, install driver, and prints a test cut.

The Enable Printer Driver program is started automatically during installation to locate any connected Afinia DLF-1100 Cutters.

If you have trouble finding the cutter or you are installing the printer driver on a network and sharing the printer, you will have to use the challenge response method of enabling the printer driver.

Call Afinia Label with the Challenge # (e.g. 1360801837 as shown) and a response code will be given to you. If you have multiple cutters attached to your machine you will need a check for each com port that is used.

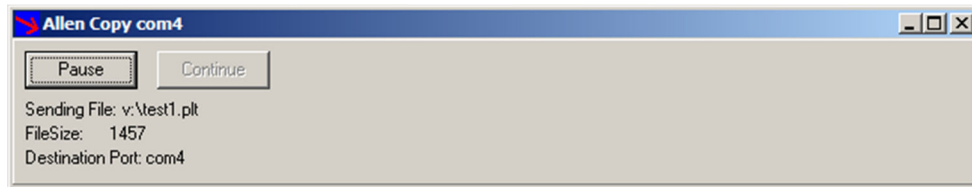


Associate PLT

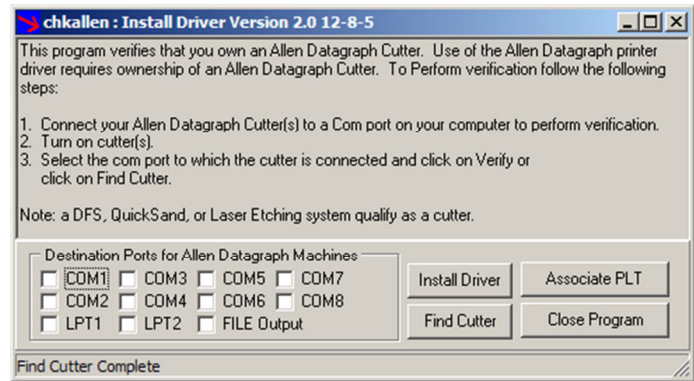
Microsoft's copy and mode command may experience issues in Windows XP when copying to a serial port. Data can be lost and E056 error can occur. Clicking the **Associate PLT** button will form an association with the PLT extension that causes chkallen to run in copy mode to send files to the COM (serial) or LPT (parallel) ports. Double clicking on a file with a plt extension after clicking the Associate PLT button will copy the plt file to the entered port. ChkAllen is started with parameters in the following format:

"C:\Program Files\Afinia Label\Cutter Driver\ChkAllen" Copy "File name" "Port".

Allen Copy appears in the task bar during the job. You may right click on the Allen Copy task and select restore to show the Allen Copy functions:



Pressing the **Pause** key will send a command to the cutter to put it in Pause. While paused, the **Continue** button is enabled. Pressing **Continue** will resume the copy function. To abort a copy, turn off the cutter and click the X at the top right of the window.



Setting up Afinia DirectCut for CorelDraw

Requirements: Requires CorelDraw 10 or higher with visual basic interface.

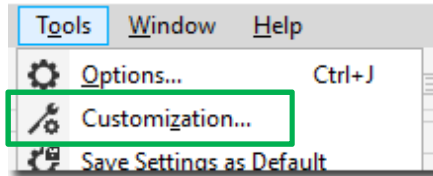
Older versions a CorelDraw will work in a degraded fashion see note at end of this section.

To enable the CorelDraw user interface, click **Tools -> Options**, place a check in the DirectCut workspace box, and then click **OK**.

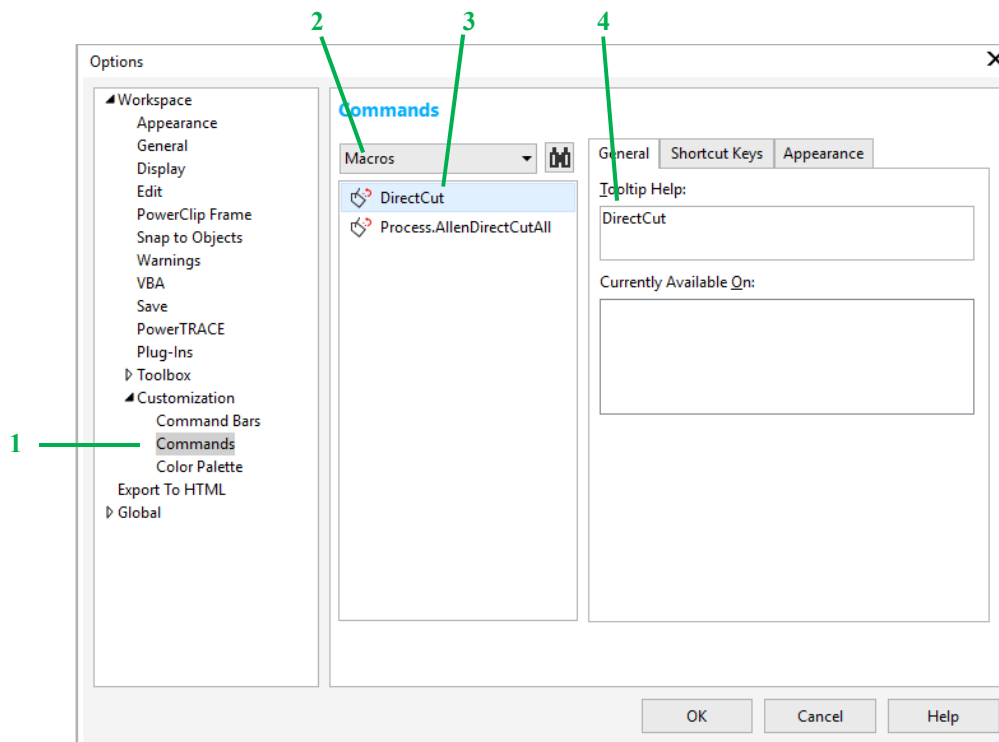
Manual Installation of DirectCut menu item and tool bar.

If the workspace does not appear you can install it manually. It consists of one new tool and one new menu item. The instructions below are for Corel Draw 11 and may have changed on different versions of the program.

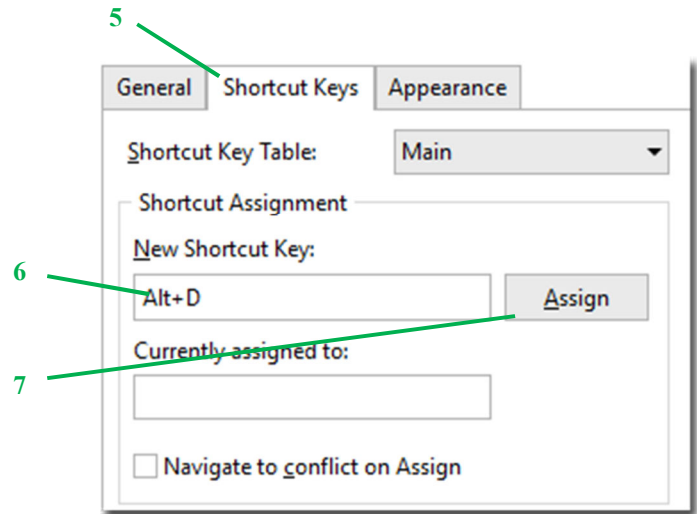
Click **Tools -> Customization**



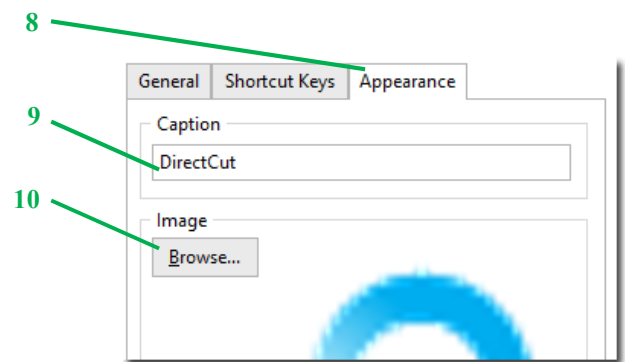
1. Click **Commands**
2. Select **Macros** from the drop down menu
3. Select DirectCut.
4. Change Tool tip as shown to DirectCut



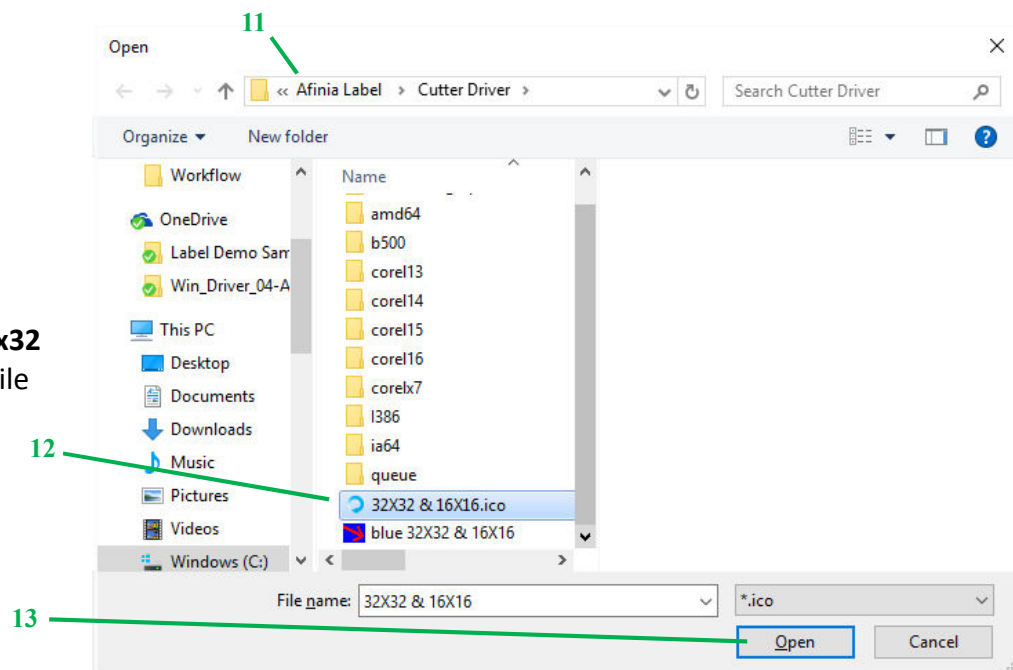
5. Select **Shortcut Keys** tab
6. Click in new shortcut key edit box and press **Alt -> D** (press the alt key and the D key at the same time)
7. Click **Assign** and the new short cut key will show in the current short cut key window



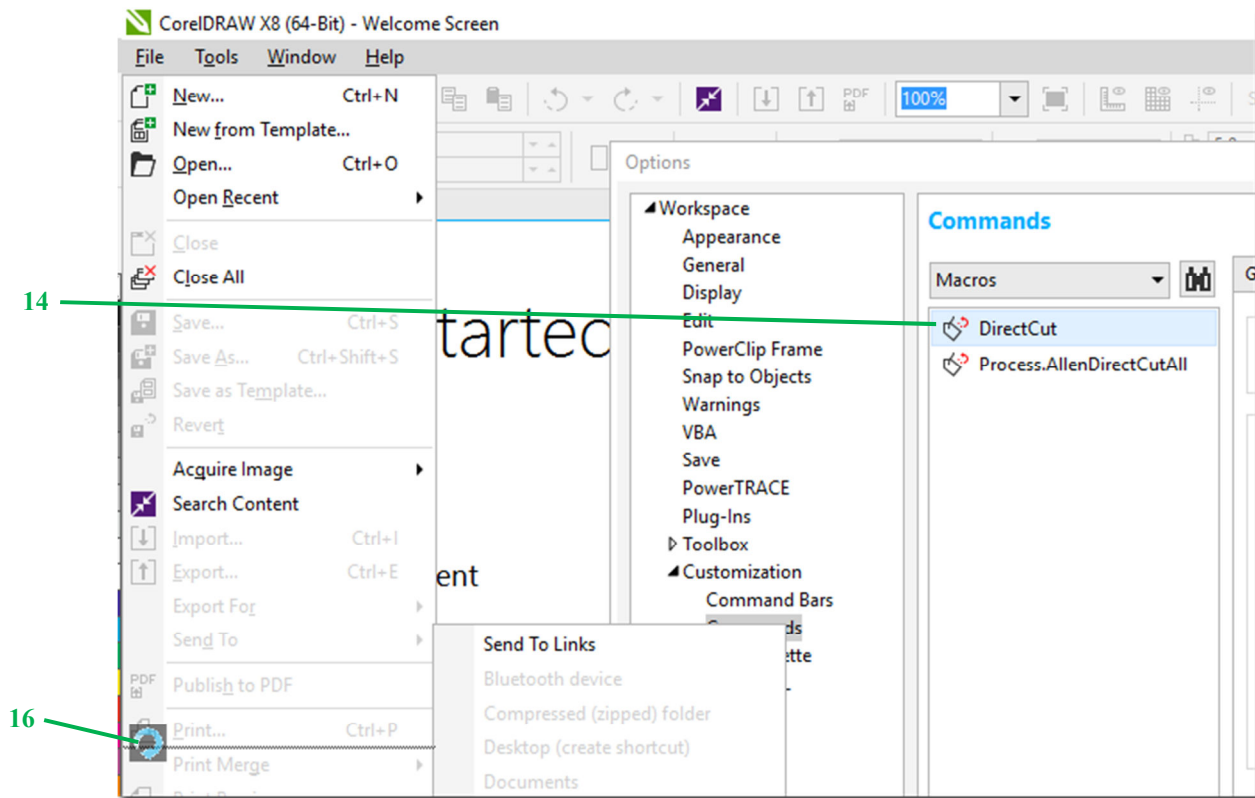
8. Click **Appearance**
9. Change Caption to Direct Cut if needed
10. Click **Browse...**



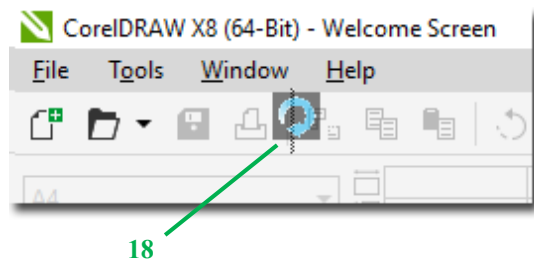
11. Navigate to C:\Program Files\Afinia Label\Cutter Driver
12. Select the **32x32 & 16x16.ico** file
13. Click **Open**



14. Place mouse over Direct Cut. Left click and hold the left mouse button down
15. Drag DirectCut over **File** menu and the menu will open
16. Keep dragging until a line appears below **Print** and let go of the mouse button



17. Place mouse over DirectCut again and hold the left mouse button
18. Drag and drop so the icon is next to Print icon on the tool bar
19. Click the **OK** button on the Options page



Older and current versions of CorelDraw can also print directly to direct cut printer driver using File -> Print with some limitations.

Setting up Afinia DirectCut for Illustrator

If the DirectCut Adobe Illustrator plug-ins are not automatically installed into your Illustrator program file location, you can manually copy the directory **Program Files\Afinia Label\DLF-1100 Installation\DLF-1100 Illustrator Plugins** into the **Plug-ins** folder in your Illustrator installation.

If you are running a 32-bit version of Illustrator, do not copy any plug-in files with '**x64.aip**' as part of the name into the Illustrator Plug-ins folder. This will cause error messages when Illustrator is launched.

Alternately, you can direct Illustrator to use the above directory as an alternate folder for plug-ins.

Adobe Illustrator Notes

Do not use Illustrator **Effect -> Convert to Shape** or **Effect -> Stylize -> Rounded corner** when creating outlines. The Illustrator Automation Object used by DirectCut does not support these features. For rounded rectangles use the rounded rectangles, ellipses and rectangles tools. You can use the **Filter -> Stylize -> Rounded Corner** as this function is supported.