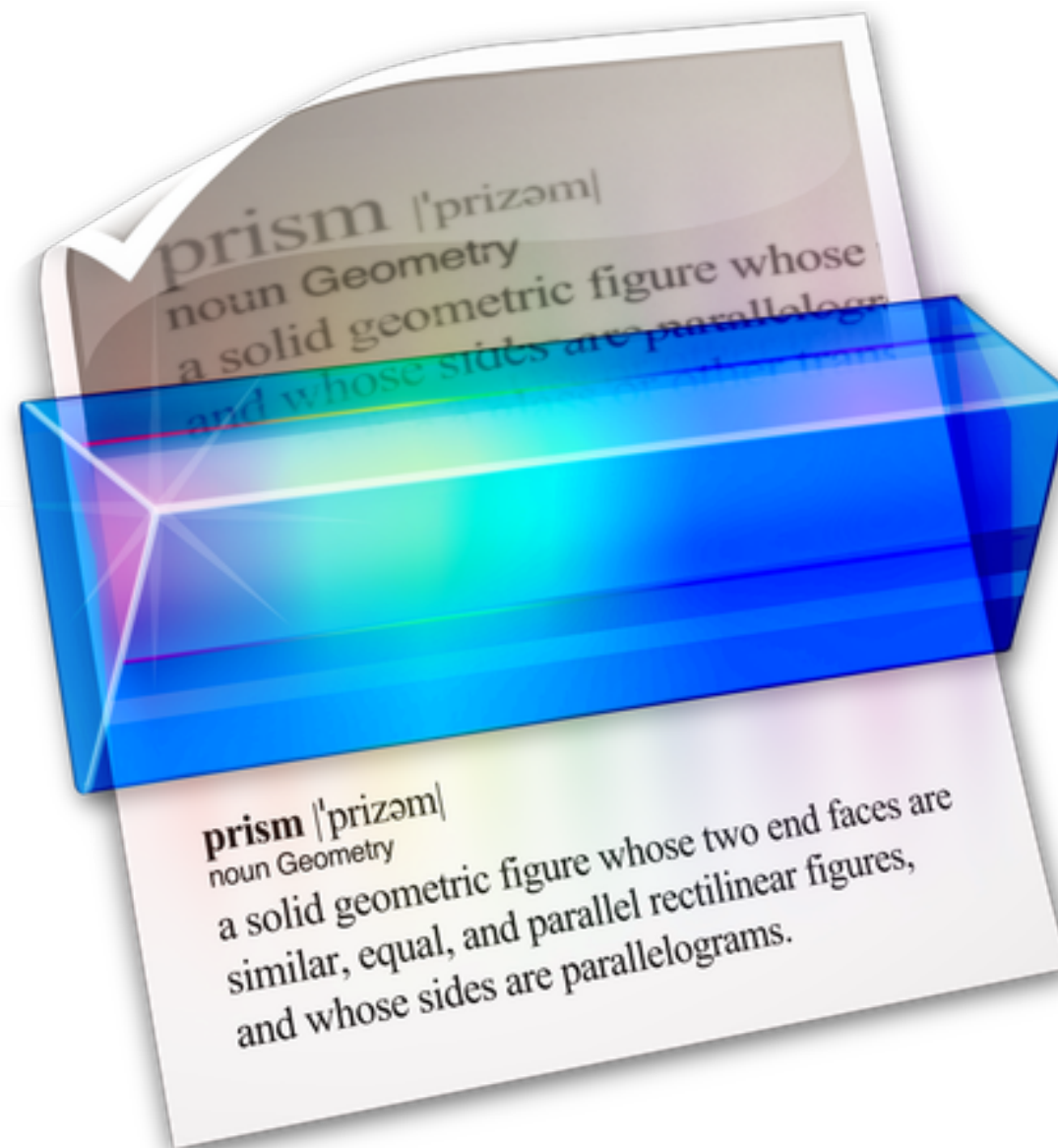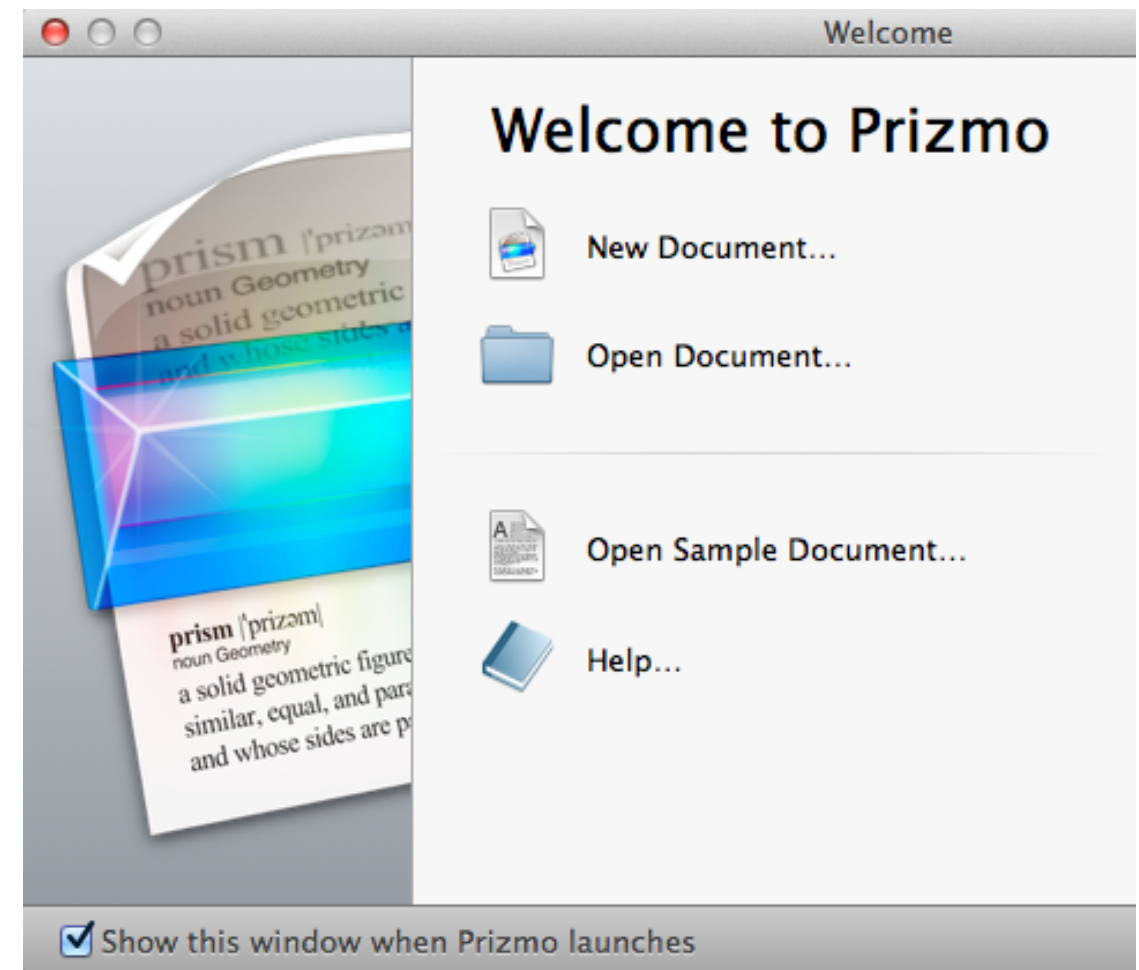# Prizmo 2

Quick Look

This chapter deals with the main steps for processing text documents, business cards, and images using Prizmo.We won't bother you with too many details, only what really matters to get accurate results.

Installing & Registering Prizmo

In a Nutshell

1. A free demo version is available for download on Creaceed's website.

2. Prizmo is available for sale through the Mac App Store℠ and Creaceed's website.

3. Mac App Store copies don't need to be registered. Apple® automatically register the application when purchasing.

4. Copies downloaded from Creaceed's website need an activation code to be registered.

5. Prizmo's Pro Pack is available as In-App Purchase on the Mac App Store.

6. Prizmo's Pro Pack is available as a separate application through Creaceed's store. Use your Prizmo 2 code when purchasing the Pro Pack through our store to get the upgrade price.

I. From the Mac App Store

Prizmo 2 is available on the Mac App Store in the Productivity category.

You can find a short description and several screenshots presenting the application and its main features.

Additional information about the application is available in the right column: version and date of the last update, size in Mb, UI localizations, OS X® minimum requirements.

In order to purchase the application, click the blue button which shows the price, and which is located below the application icon. The button turns green, and now shows «Buy the app». Click again to confirm the purchase, and fill in the fields about your iTunes® account. Confirming automatically starts downloading the application, and its icon will appear in the Dock.

Once the download is complete, click the icon to launch Prizmo.

Apple use a licensing system relying on neither license key nor activation code. It means that Prizmo is fully functional as soon as it is purchased through the Mac App Store. No need to register it once again.

Apple will email you a receipt stating you purchased Prizmo. Make sure to keep this email. It could be useful sooner or later. We might need it as Apple don't disclose any information about Mac App Store customers.

Prizmo's Pro Pack is available as an In-App Purchase within Prizmo, not as a distinct application. Therefore, it means you have to purchase Prizmo, and then the Pro Pack through Prizmo. For more information about Pro Pack features, please read Chapter 3.

For purchasing Pro options, open «Preferences…», and choose «Pro Pack». Click the «Buy» button, and confirm the purchase.

IMAGE 1.1 Activate the Pro Pack Through In-App Purchase

This purchase will be listed in iTunes history as well. Imagine you get a new Mac for Christmas, you can download a fresh copy of Prizmo 2 from the Mac App Store for free (if you use the same iTunes account). Then, click the «Restore Purchase» button for unlocking the Pro Pack on your new Mac.

II. From Creaceed's Website

A demo version of Prizmo 2 is available on our website. It includes both the standard version of Prizmo and the Pro Pack.

The demo version enables you to evaluate the application before actually purchasing it. It is neither time-limited, nor limited to a fixed number of projects. Here are the limitations of the demo version:

- if you output an image file: a watermark with the Prizmo icon is added to the image.
- if you output a text file or a business card: some words are replaced by the following characters ●●●●●●●.

You can find the downloaded application in the Downloads folder on your Mac. Move it to the Applications folder.

If you like Prizmo, you can purchase an activation code in our online store. Several payment methods are available depending on your country of residence: credit card, wire transfer, check…

There are 2 license types available:

- the regular license for Prizmo 2 at $49.95
- the license for Prizmo 2 including the Pro Pack at $99.95.

More information about upgrading from the regular license to the license including the Pro Pack on page 4.

As soon as payment is processed, you'll get your personal activation code by email. Keep it for later use (for instance if you have to reinstall OS X, or for upgrade purposes).

And now, let's register your copy of Prizmo. Click « Prizmo» in the application menu, and choose «Register / Buy a License...». Fill in the following mandatory information in the registration window: your name, email address, and activation code. Make sure your Mac has Internet access as Prizmo will connect to our database to complete the activation process.
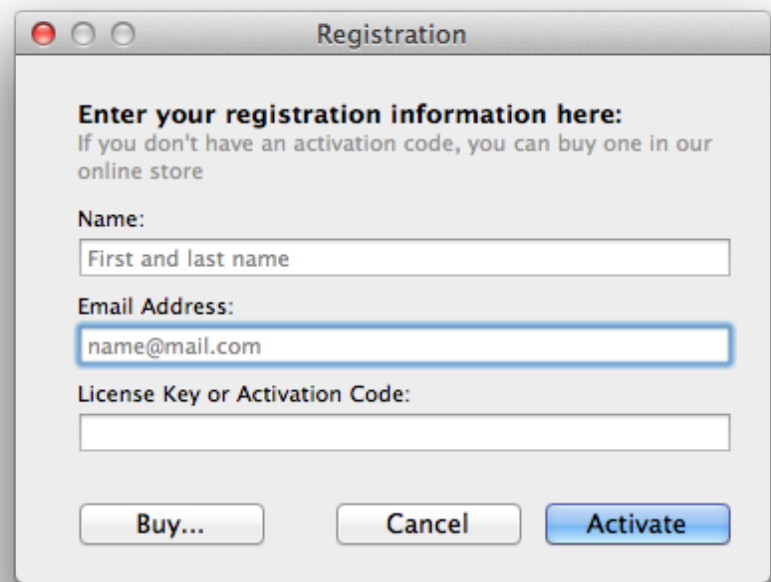
IMAGE 1.2 Activate your Copy of Prizmo 2

When registering, the application will detect which license type you purchased. So, an activation code for Prizmo 2 will unlock the standard features, whereas an activation code for Prizmo's Pro Pack will unlock the standard features and the Pro options.

Remark:

If you purchased the regular license for Prizmo 2, and you want to use the Pro Pack features, you can upgrade through our website. Simply copy/paste your regular activation code for Prizmo 2 in the Coupon code field on our store, click Recalculate, and you'll automatically get a discount on the Pro Pack. You'll pay only the price difference.
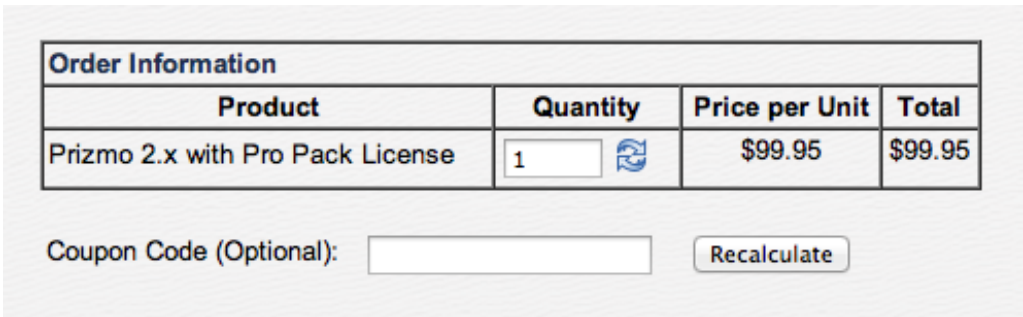

IMAGE 1.3 Paste the Code to Get the Upgrade Price

As soon as payment is processed, you'll get a new personal activation code by email. You can activate the Pro Pack using this code by opening the Preferences window, and choosing the Pro Pack tab. Click the «Enter License» button, and unlock Pro options.

Processing a Text Document

Letters, reports, press articles, books, flyers… At school, at the office, or at home, we are surrounded by lots of text documents. However, we can't keep everything, and we can't throw everything away either! So, archiving and sharing seems the way to go. Prizmo will help you achieve this.

I. Choosing Document Type

Import the text into Prizmo.

You are in "Image Mode", i.e. the 1st step in Prizmo where you can handle everything related to the image (rotation, crop, perspective correction, lens distortion correction, image processing adjustments, OCR settings). We don't show all the image tools in this section, we'll focus on the most important ones for processing texts.

Select the document type in the bottom toolbar in Prizmo main window. Each document type has its own settings and options. Choose the «Text» type.
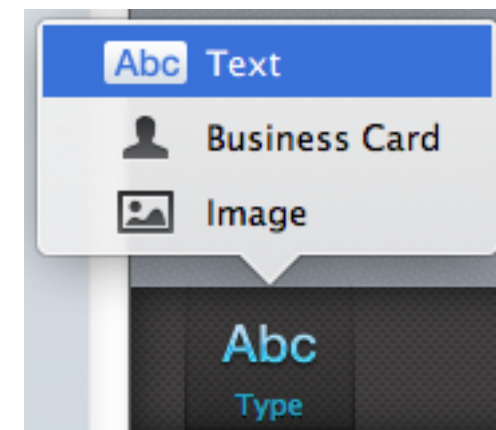

IMAGE 1.4 Choose Correct Document Type

Remark: You can process several pages of text in a single Prizmo document. However, you'll have to create a new document if you want to process an image or a business card.

In a Nutshell

1. Perspective is automatically corrected when setting the crop frame on the photograph.

2. Page borders can be automatically detected.

3. Prizmo enables you to view characters the same way the OCR engine sees them. So, you can adjust readability before launching OCR.

4. There are 3 types of recognized data: text regions, image regions, and numeric regions.

5. In Text Mode, you can add, delete, merge and reorder regions.

6. You can edit recognized text before exporting the output.

II.Cropping Page

Select the page shape on the picture. Open the Crop window, click the «Frame» tab, and click the «Auto Detect» button.

Prizmo includes a technology for detecting page borders. We advise you to put the page on a desk of a different color, or with enough contrast when you take the picture. So, there'll be some contrast between the page and the background, which will help Prizmo detect borders successfully.

IMAGE 1.5 Auto Detect the Page Shape

Prizmo automatically crops the picture to fit the selected area, and corrects perspective. You can preview the updated picture in the left column.

III.Correcting Lens Distortion

As this picture is actually a photograph, correcting camera lens distortion will be an asset. This will help straight lines look really straight on the whole image (even near the borders). It will be useful when performing OCR, and will lead to more accurate results.

Open the Lens window, activate the feature, and check if there are calibration models available, either locally or online. Select the best model in the list (usually the 1st one). If there's none available, you can create one. More information about this in Chapter 4.

IV.Preparing for OCR

OCR might be seen as a kind of magic but it still lacks clairvoyance. So, it needs your help to reach maximum accuracy!

First, image quality is what matters most when it comes to performing OCR. Even the best OCR engine in the world can't efficiently recognize characters on a blurry picture or on a shot with poor contrast. Please pay attention to the image quality when you photograph documents.

Second, Prizmo enables you to view characters just like the OCR engine actually sees them. So, you can check if the text is readable before performing OCR. Open the OCR window, zoom in, and move the «Readability» slider until you can read characters properly on the whole document.

- If characters are too light/bright, the OCR engine won't have enough information to distinguish, let's say, a "t" from a "l".
- Darkening the text too much isn't better, as there will be black spots everywhere. The OCR engine might take an "i" for an "l" for instance.

Make sure to check that characters are readable on the whole page. Lighting conditions can vary a lot between the top and the bottom of the same page. And perspective can also affect character quality. Press the Alt key, click left with the mouse and move the page within Prizmo. If need be, move the «Readability» slider until you reach the level where all characters are satisfyingly readable.
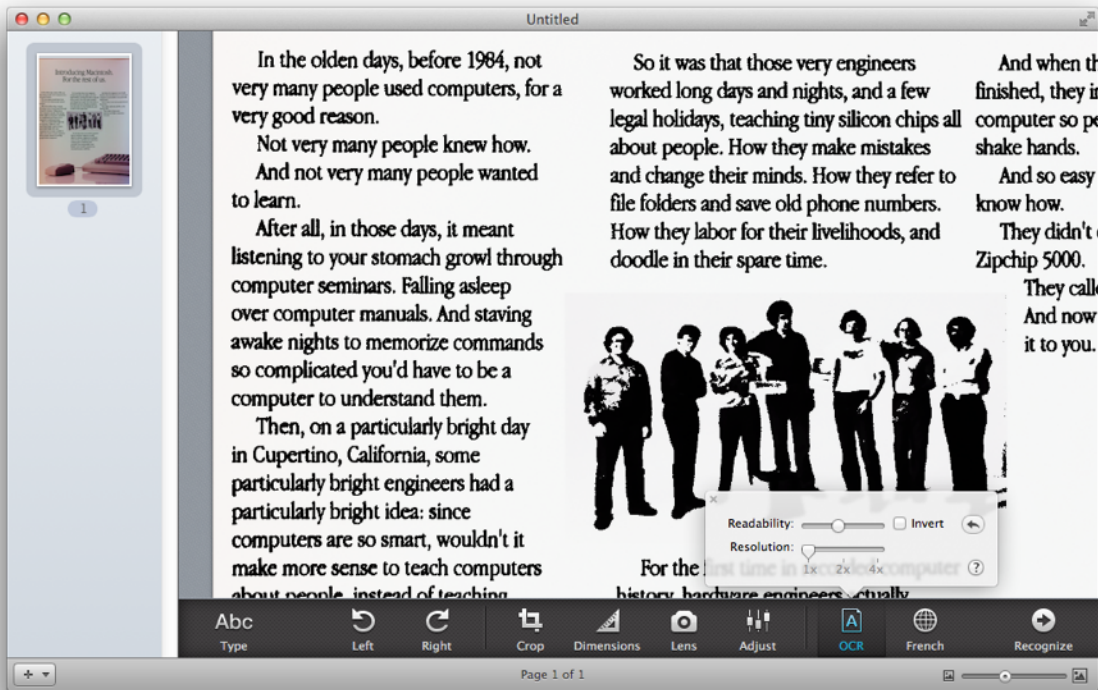

IMAGE 1.6 Check Character Readability on the Whole Page

Now, you have to select the OCR engine language in the list.

Imagine you process a text in German while English is set as language for OCR. OCR results will be disappointing because some letters exist in German, but not in English ("ö", "ü", "ä", "β"…). As the OCR engine doesn't expect these characters to occur in English, it won't be able to recognize them, even if they are common in German. So, please check the language is correct before performing OCR.
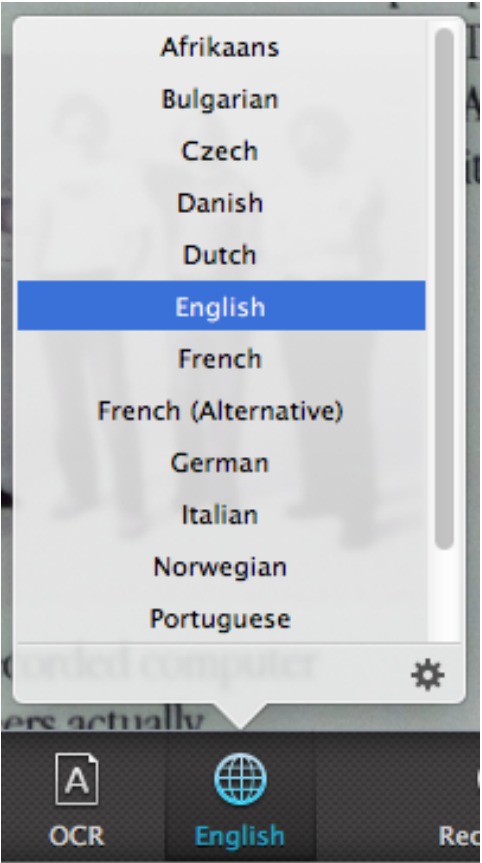
IMAGE 1.7 Choose OCR Language

Click the «Recognize» button to launch OCR, and go to the «Text Mode».
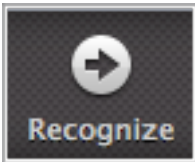
V.Checking & Correcting Recognized Text

You are now face to face with OCR results. Prizmo scanned the page, analyzed its content, and created several regions on the page:

- text regions
- image regions
- numeric regions.

You can check if everything is correct, and update the recognized text before exporting the output. This way, you don't need to post-process the text output by Prizmo.

INTERACTIVE 1.1 Update Text after OCR

Column Resize

Region Order

Typing

Single Image
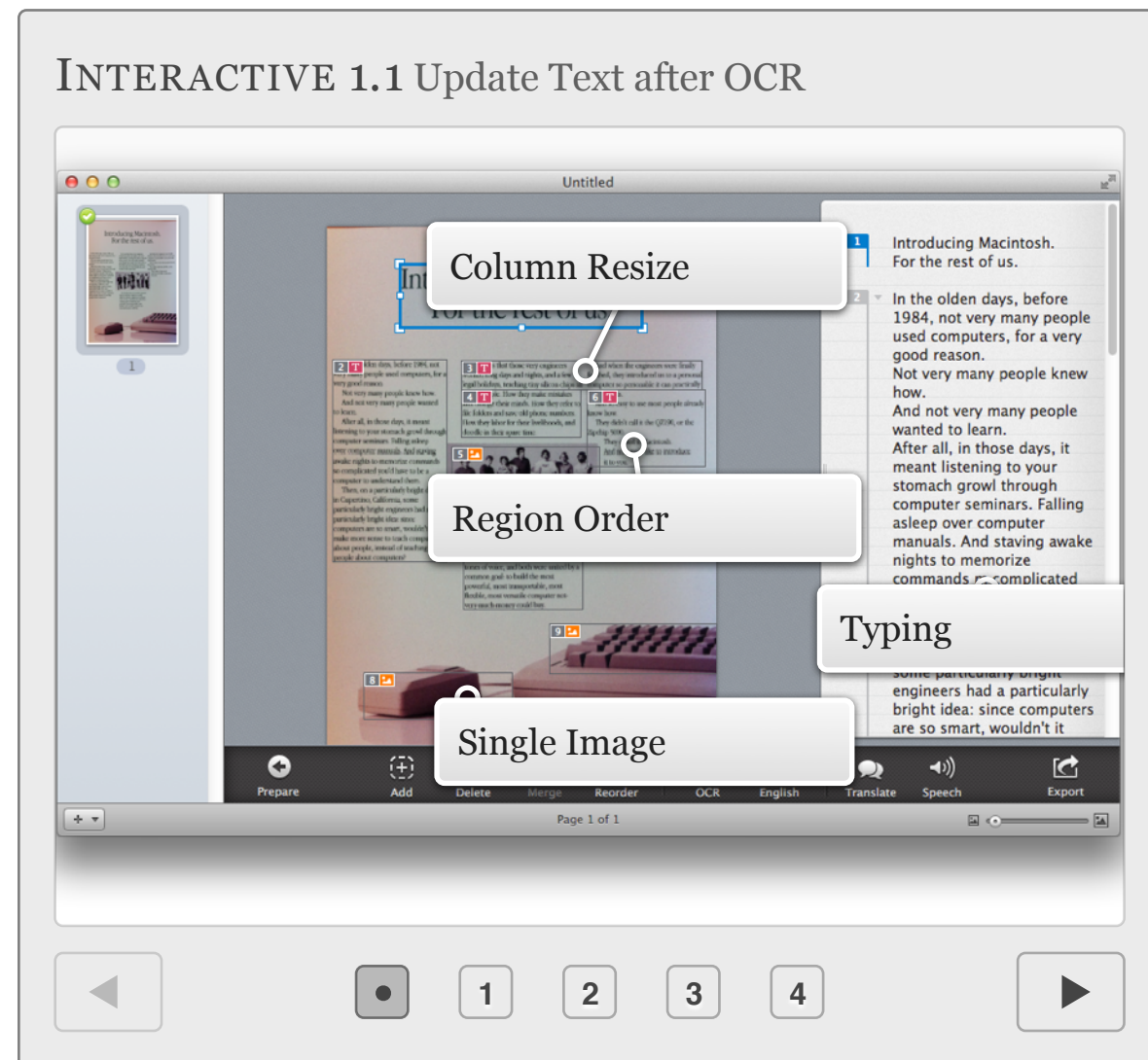
If you are interested in more than just text, you can keep the image regions Prizmo detected. However, no need for 2 images at the bottom of the page (regions # 8 and 9); one bigger image is enough. So, delete image #9, and enlarge image #8 in order to cover both the keyboard and the mouse.

Prizmo recognized a text region (#3) on both the second and third columns, which is not correct. These columns might be too close to each other in the original document. Resize this region in order to cover only the second column. Then, enlarge region #6 to cover the whole paragraph in the 3rd column. Finally, merge regions #3 and #4 by clicking the «Merge» button.

Note that when you create, move, or merge text regions, OCR is automatically performed again in real time. This is a unique feature of Prizmo.
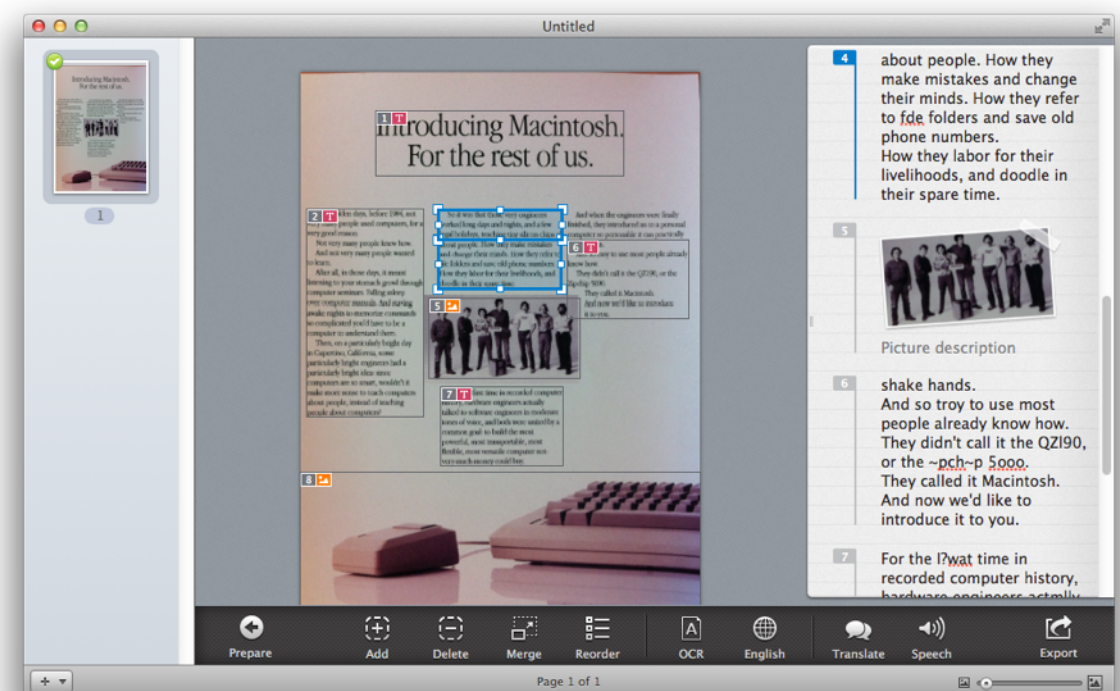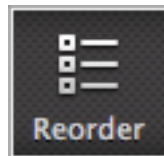
IMAGE 1.8 Merge Several Text Regions into a Single One

As all regions are numbered, you can easily notice the order is not correct for the 2nd and 3rd columns. If you export the text this way, the last paragraph will be listed before the penultimate paragraph. You can fix this by using the «Reorder» feature. Click the button to activate the feature.

Click the title to design it as #1 in the document, click the paragraph in the 1st column to design it as #2, then the 1st paragraph in the 2nd column to design it as #3… and click the mouse and keyboard image to design it as #7.

Finally, you can edit the text shown in the right column. Select the text region. Prizmo will zoom on it so that you can check what the right word is, and type it as in any text editor.

VI.Exporting

Several export formats are available for text documents:

- Image formats: JPEG, PNG, or TIFF
- Text formats: PDF (Text), PDF (Image + Searchable Text), RTF, or TXT.

You can export either all pages, or only the selected page, to:

- **Evernote**®: login to the service, and save the output.
- **Box**: login to the service, and save the output.
- **Dropbox**: choose the folder where to save the output.
- **Google Drive**: choose the folder where to save the output.
- **WebDAV**: login to the service, and save the output.
- **Mail**: the document is automatically attached to a new mail.
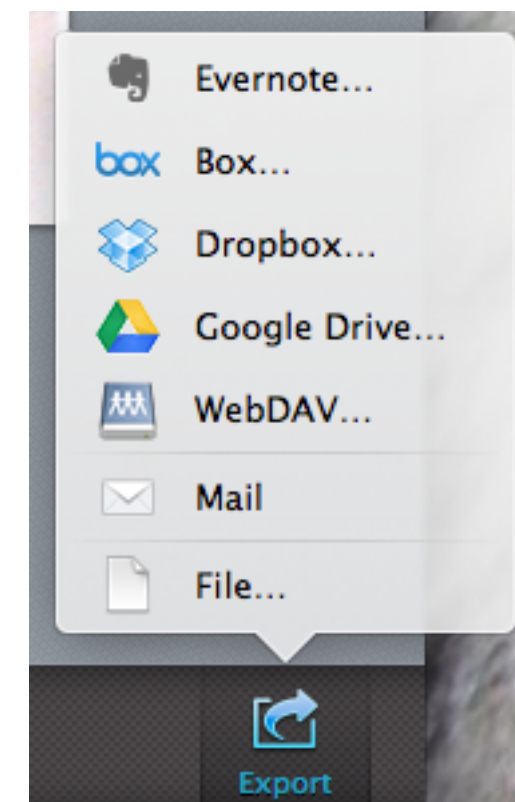- **File**: choose the folder where to save the output on your Mac.

IMAGE 1.9 Correct Spelling Errors in the Right Column

IMAGE 1.10 Export Options

Processing a Business Card

Prizmo enables you to recognize business card information, in order to add it to your address book, or to share it with other people very easily.

There is no need to type every single field in the Address Book application on your Mac. Here is how it works.

I. Choosing Document Type

Import the business card picture into Prizmo.

You are in "Image Mode", i.e. the 1st step in Prizmo where you can handle everything related to the image (rotation, crop, perspective correction, lens distortion correction, image processing adjustments, OCR settings). We don't show all the image tools in this section, we'll focus on the most important ones for processing business cards.

Select the «Business Card» document type in the bottom toolbar in Prizmo main window. Each document type has its own settings and options.
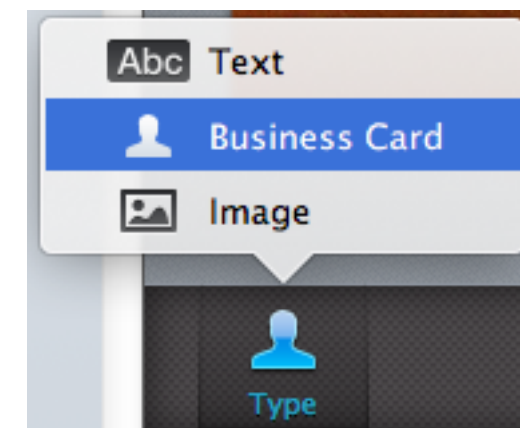
IMAGE 1.11 Choose Correct Document Type

Remark: You can process several business cards in a single Prizmo document. However, you'll have to create a new document if you want to process a text or an image.

II. Selecting Area to be Processed

Select the card shape on the picture. Open the Crop window, click the «Frame» tab, and click the «Auto Detect» button.

Prizmo includes a technology for detecting card borders. We advise you to put the card on a desk of a different color when you take the picture. So, there'll be some contrast between the card and the background, which will help Prizmo detect borders.

Prizmo automatically crops the page to fit the selected area, and corrects perspective. You can preview the updated picture in the left column.
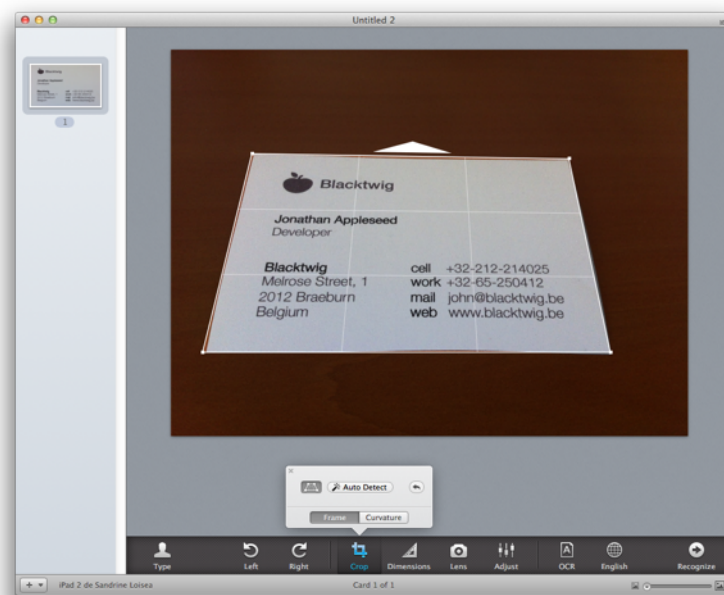

IMAGE 1.12 Auto Detect the Business Card Shape

Make sure «Business Card» is selected as format in the «Dimensions» window, as this setting tells Prizmo how big the text is expected to be.

III. Preparing for OCR

First, image quality is what matters most when it comes to performing OCR. Even the best OCR engine in the world can't efficiently recognize characters on a blurry picture or on a shot with poor contrast. Please pay attention to the image quality when you photograph documents.

Second, Prizmo enables you to view characters as the OCR engine actually views them. So, you can check if the text is readable before performing OCR. Open the OCR window, zoom in, and move the «Readability» slider until you can read characters properly on the whole document.

- If characters are too light/bright, the OCR engine won't have enough information to distinguish, let's say, a "t" from a "l".
- Darkening the card too much isn't better, as there will be black spots everywhere. The OCR engine might take an "i" for an "l" for instance.

IMAGE 1.13 Improve Character Readability

Now, you have to select the OCR engine language in the list. Using the right language for performing OCR is a must for guaranteeing accurate results.

Imagine you process a text in French with English set as language for OCR. OCR results will be disappointing because some letters exist in French, but not in English ("é", "è", "à", "ç"…). As the OCR engine doesn't expect these characters to occur in English, it won't be able to recognize them. So, please check the language is correct before performing OCR.
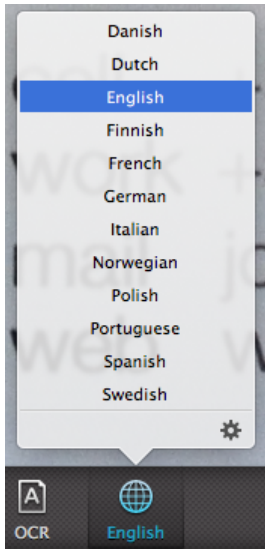
IMAGE 1.14 Choose OCR Language

Click the «Recognize» button to launch OCR.
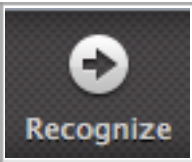
IV.Checking & Correcting Recognized Text

Welcome to the "Text Mode"! It's the 2nd step in Prizmo, and it is dedicated to OCR results. You have no access to other image processing tools at this step. If you want to edit the image again, you would need to go back and discard all changes you made to the text.

Prizmo has scanned, recognized and analyzed the information available on the business card. It has even pre-filled the business card fields with the recognized text to help you save more time.

Now, you can check if the OCR engine did a good job, and correct any mistakes it might have made:

1. You can change the region type by right-clicking the region in the image preview, choosing "Type" in the list, and selecting the right type in the list. In the example below, the company logo and name were recognized as a text region, but we want it to be handled as an image region.
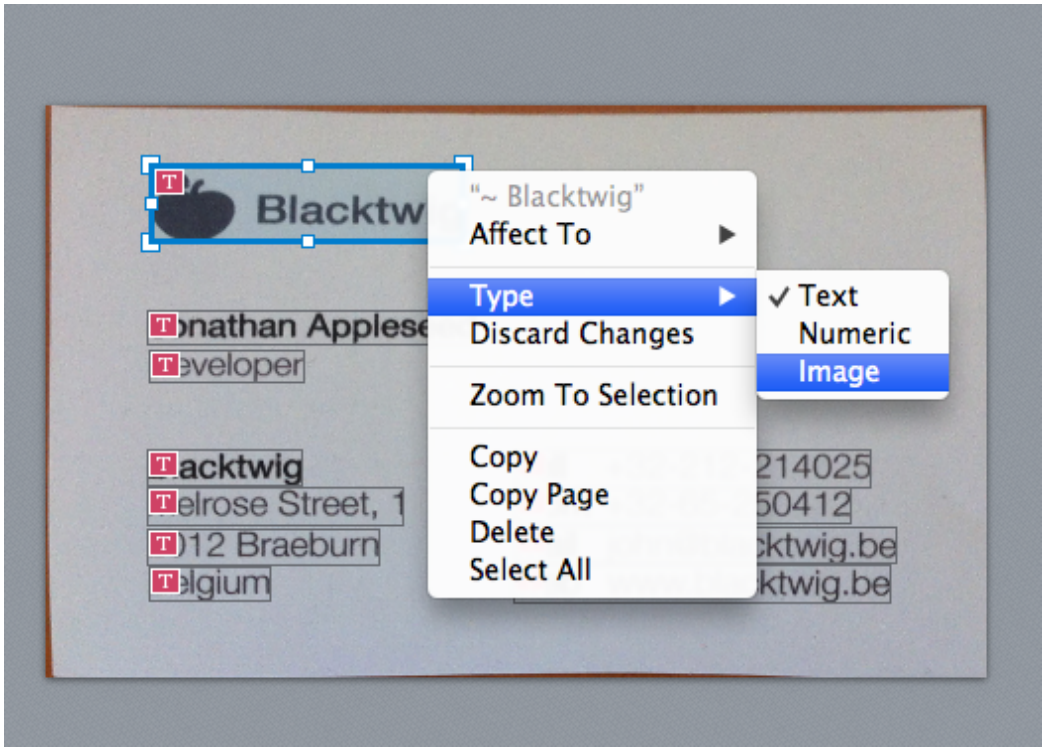

IMAGE 1.15 Change the Logo into an Image Region

2. You can assign or change the field type: select the text region in the main window, then click the arrow next to the recognized text at the top of the right column, and choose the right field in the list.
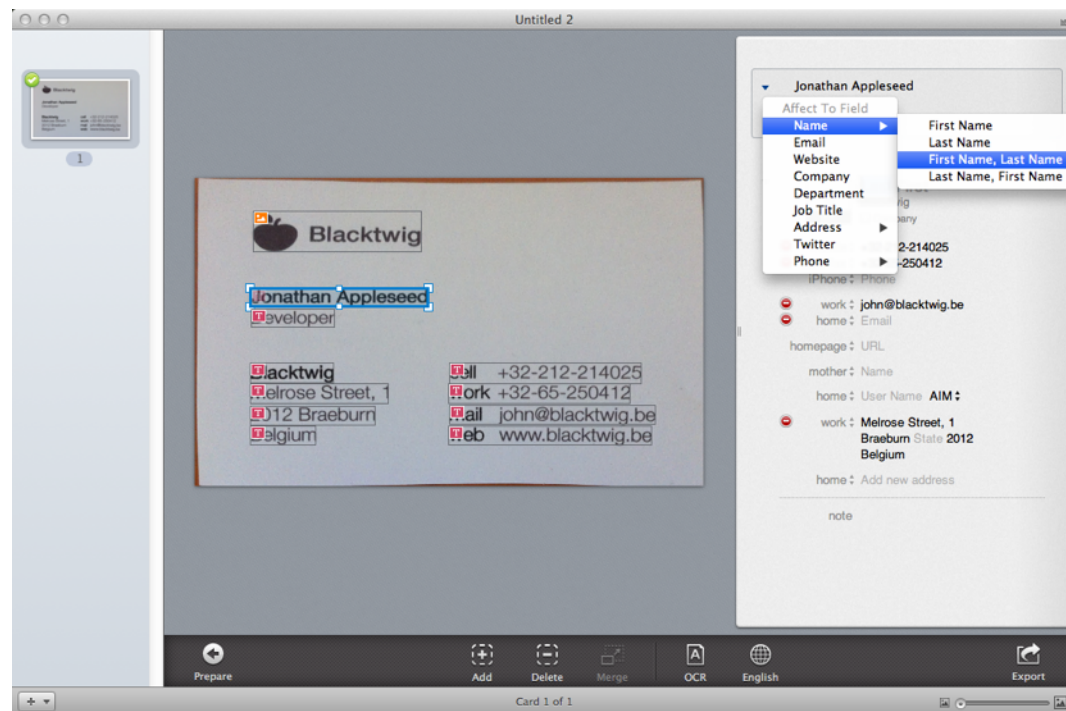

IMAGE 1.16 Assign or Update Field Types

3. If a character was not properly recognized, you can update the information in the right column. Here, let's remove the word "web" from the website field.
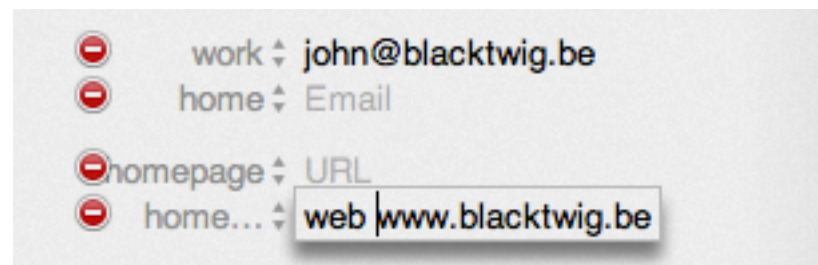

IMAGE 1.17 Edit Recognized Text in the Right Column

IV. Exporting

When business card information has been checked (and corrected if need be), there are several export options available:

- **Send vCard by Mail**: the vCard is automatically attached to a new mail.
- **Add to the Address Book**: you can automatically create a new contact in the Address Book, or you can merge the card with previously available information about the same contact.
- **Save vCard File on your Mac**: choose the location where to save the vCard on your Mac.
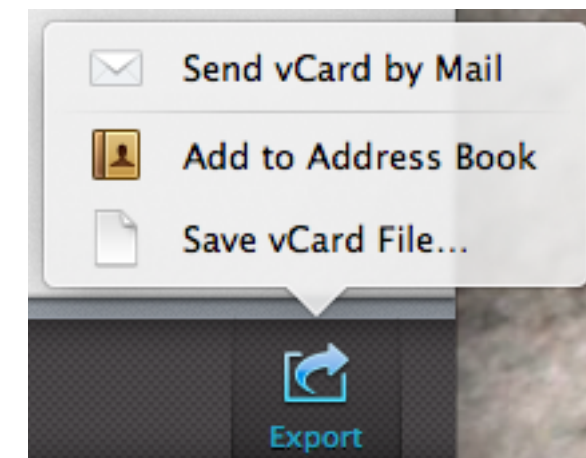

IMAGE 1.18 Export Business Card Information

Processing an Image

1. Prizmo includes a specific mode for processing images (no OCR processing applied).

2. Perspective is automatically corrected when selecting the image on the photograph.

3. Image resolution is linked to the image format.

4. Photographs always show some level of lens distortion. Correct this by choosing a calibration model (available either locally, or online).

5. There are many export options for images: Evernote, Dropbox, Mail...

Prizmo is able to process images in a few clicks. You can select them on a photograph, and straighten them. Lens distortion can also be corrected. No need to use a very expensive image processing application to achieve this.

What could it be used for? Archiving documents like ads and marketing campaigns, adding information boards to your vacation pictures, saving painting pictures taken in a museum without their frame...

I. Choosing Document Type

Import the picture into Prizmo.

Select the document type in the bottom toolbar in Prizmo main window. The "Image" type implies that no OCR will be performed on the page. Therefore, the settings for OCR and Language are not available when you process images.
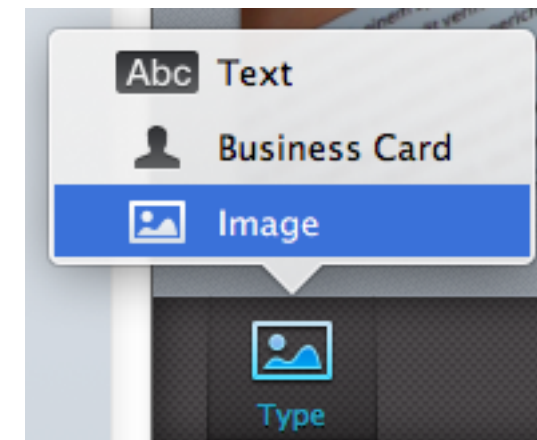

IMAGE 1.19 Choose Correct Document Type

Remark: You can process several images in a single Prizmo document. However, you'll have to create a new document if you want to process a text or a business card.

II.Selecting Image

Select the image on the page. Open the Crop window, and click the «Frame» button.

Click the [icon] icon for deactivating perspective locking. It means you are free to move each corner the way you want.
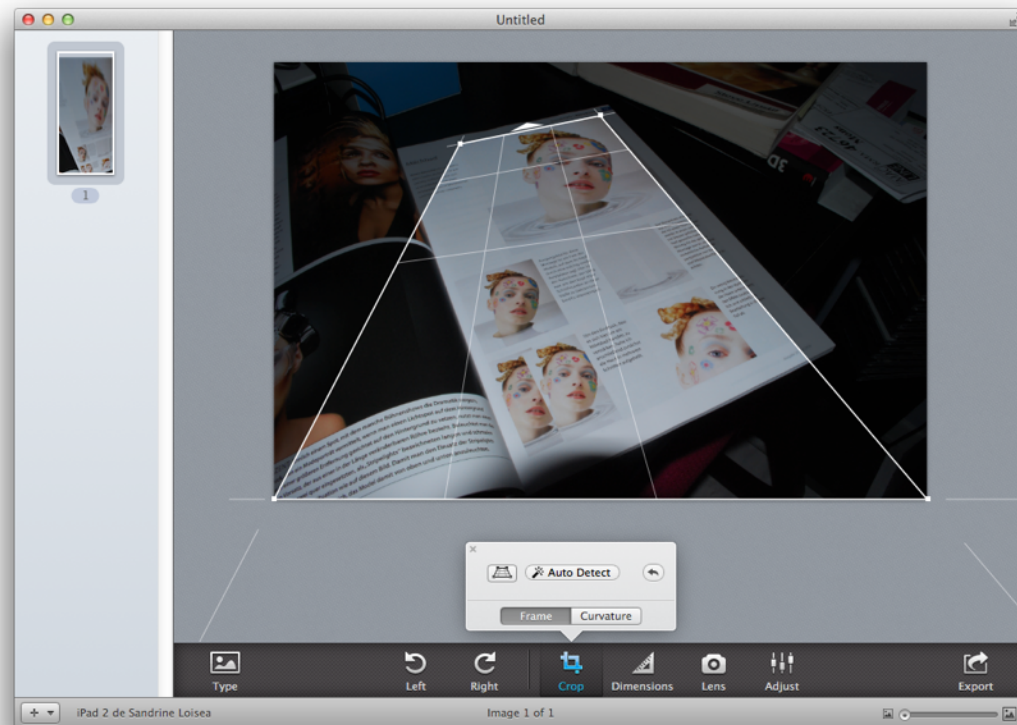

IMAGE 1.20 Select Image and Correct Perspective

Now move the grid corners to the image corners. Prizmo automatically crops the picture to fit the selected area, and corrects image perspective. The previewed image in the left column is updated while you are fine-tuning the selection.

The arrow on the top of the grid indicates the top border of the output image.

III.Choosing Image Dimensions

Now that the image is properly selected, you can check the image dimensions. Open the Dimensions window, and choose the format in the drop-down menu (if the default one is not correct).

The image resolution in dpi is also mentioned in this window. As the resolution is linked to the image format, you'll notice the resolution is updated when changing the format. This setting is important if you want to print the image later.

In this example, we need a custom format. You can type the exact dimensions in the «Width» and «Height» fields.
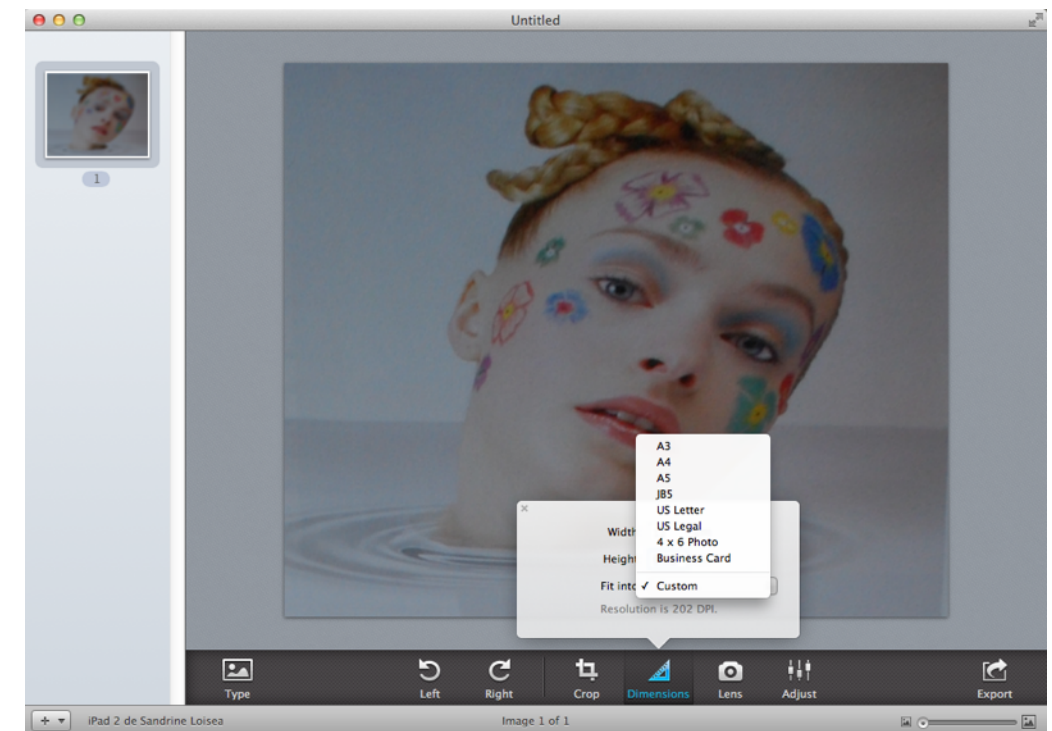

IMAGE 1.21 Check Image Dimensions

IV. Correcting Lens Distortion

If the input picture was taken with a digital camera, correcting lens distortion will be useful. This will help straight lines look really straight on the whole image. They could otherwise look like curves, especially near image borders.

Open the Lens window, activate the feature, and select the best calibration model in the list (usually the 1st one). In this example, we select the model available in the online calibration database.

V. Image Processing

You can now play with the image adjustment options. You have access to the following tools: brightness, contrast, sharpness and saturation.

Besides, you can invert colors, and use the white/black picker tools (for identifying something that is respectively white or black on the image).
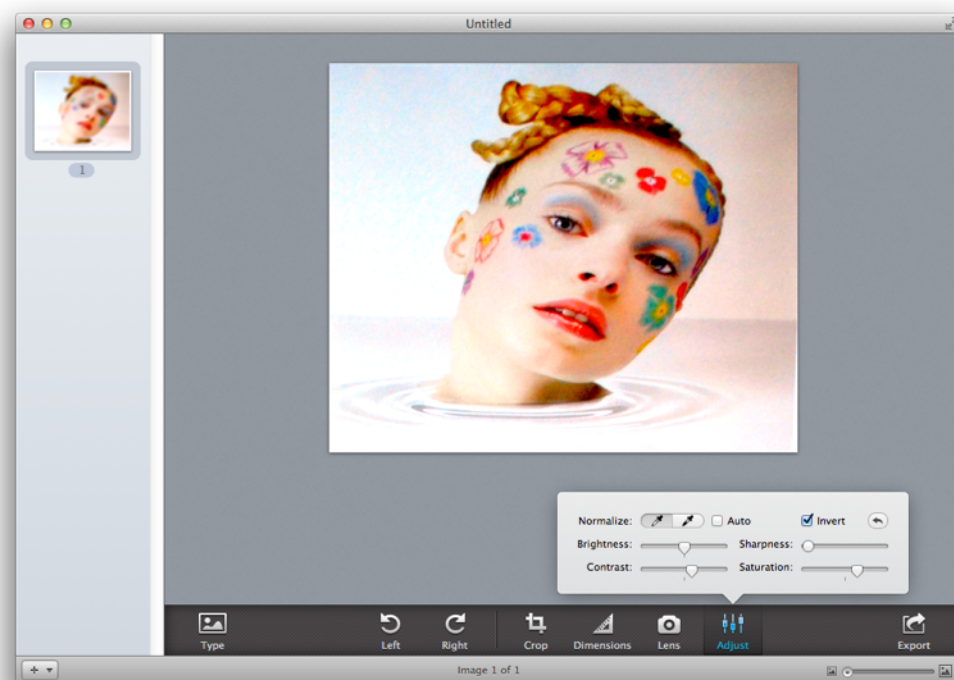

IMAGE 1.22 Improve the Image Brightness, Saturation…

VI. Exporting

When satisfied, you can export in JPEG, PNG, TIFF, or PDF (Image), either all the images, or only the selected image, to:

- **Evernote**: login to the service, and save the output image.
- **Box**: login to the service, and save the output image.
- **Dropbox**: choose the folder where to save the output image in Dropbox.
- **Google Drive**: choose the folder where to save the output image in Google Drive.
- **WebDAV**: login to the service, and save the output image.
- **Mail**: the image is automatically attached to a new mail.
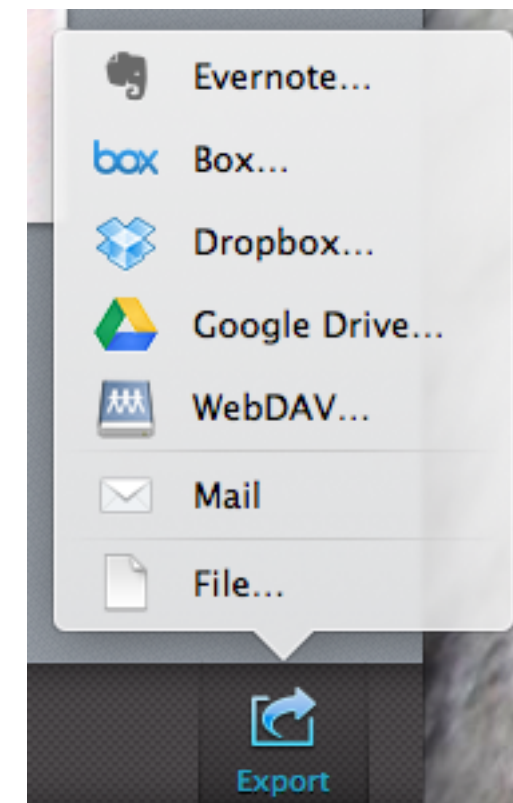- **File**: choose the folder where to save the output image on your Mac.

IMAGE 1.23 Image Export Options

Under the Loupe

Chapter 1 got you acquainted with using Prizmo. We can now go further in mastering all its features. First, you'll discover there are many ways to import pictures into Prizmo. Then, you'll learn how to improve the image before performing OCR. Finally, editing and correcting OCR results will be explained in detail.

Importing Documents

I. From a Camera

There are several ways to import a picture right from a camera to Prizmo. So, you don't need to save the pictures on your Mac before importing them into Prizmo.

a.Browse Camera

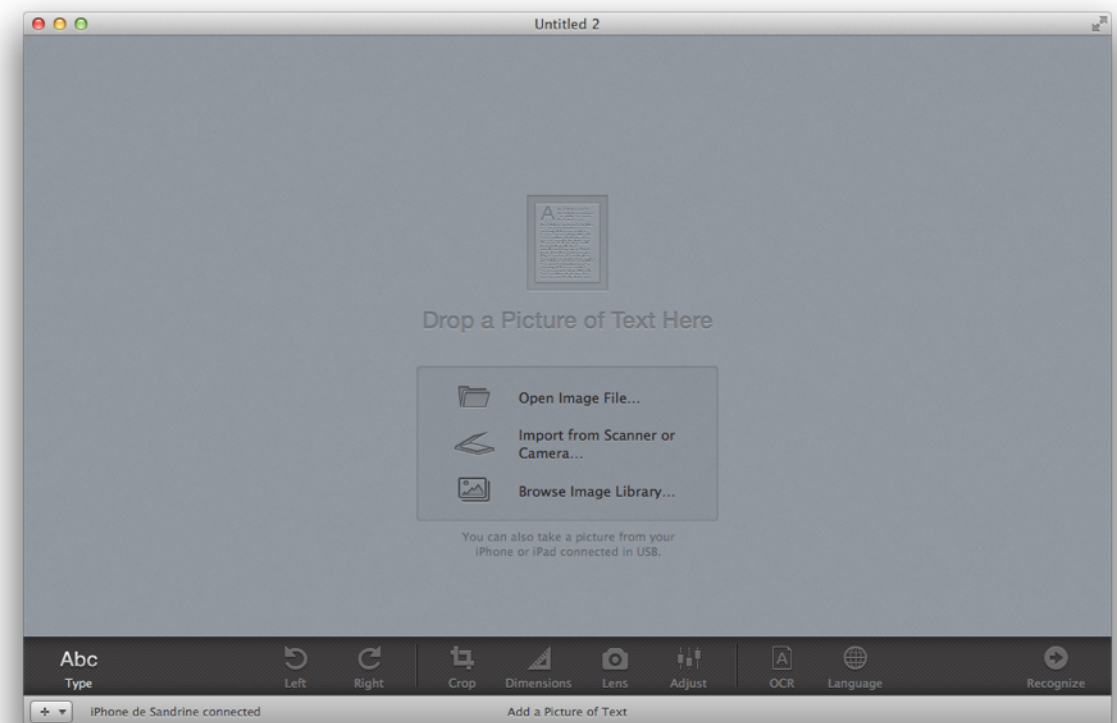1.When you launch Prizmo, you are invited to drop a picture in the main window.

IMAGE 2.1 Drop your Picture, or Select Another Import Option

2.Plug your camera (or your iPhone) to your Mac.

3.Click «Import from Scanner or Camera...».

4.Choose the camera in the top bar, and browse the camera content for locating the right picture(s).

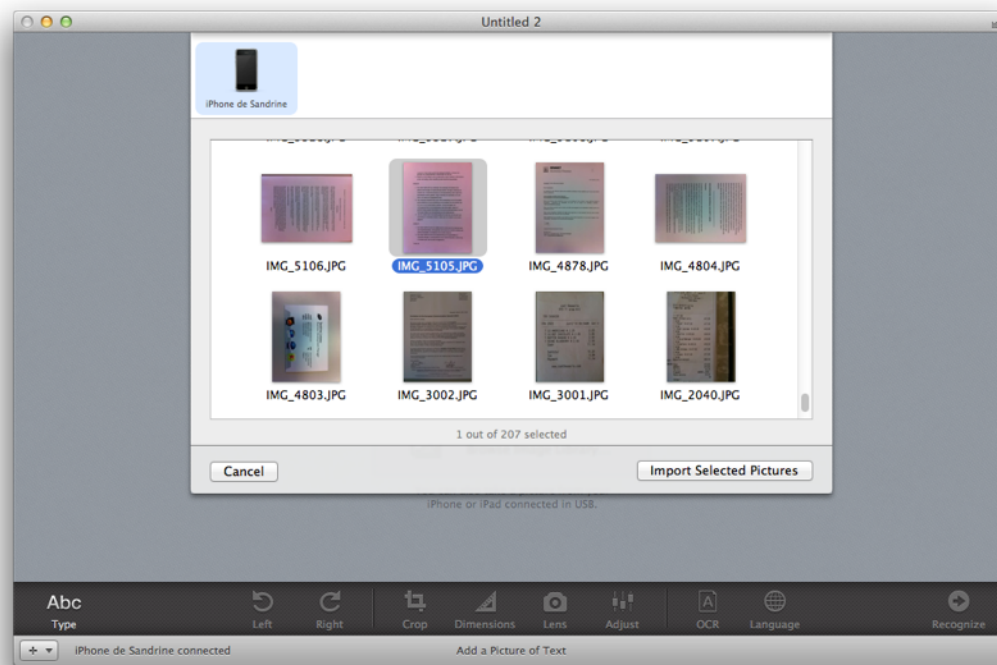5.Select the picture(s), and click the «Import Selected Pictures» button.

IMAGE 2.2 Browse Camera Content for Selecting the Picture

6.Pictures are automatically imported, and you can start processing them in Prizmo.

b.Half Tethering

You can go one step further with tethered capture. The iPhone is one of the devices you can use for half tethering (i.e. a «light» tethering mode).

1.Plug your iPhone to your Mac.

2.Launch the camera application on your iPhone.

3.Take a picture of a document with your iPhone.
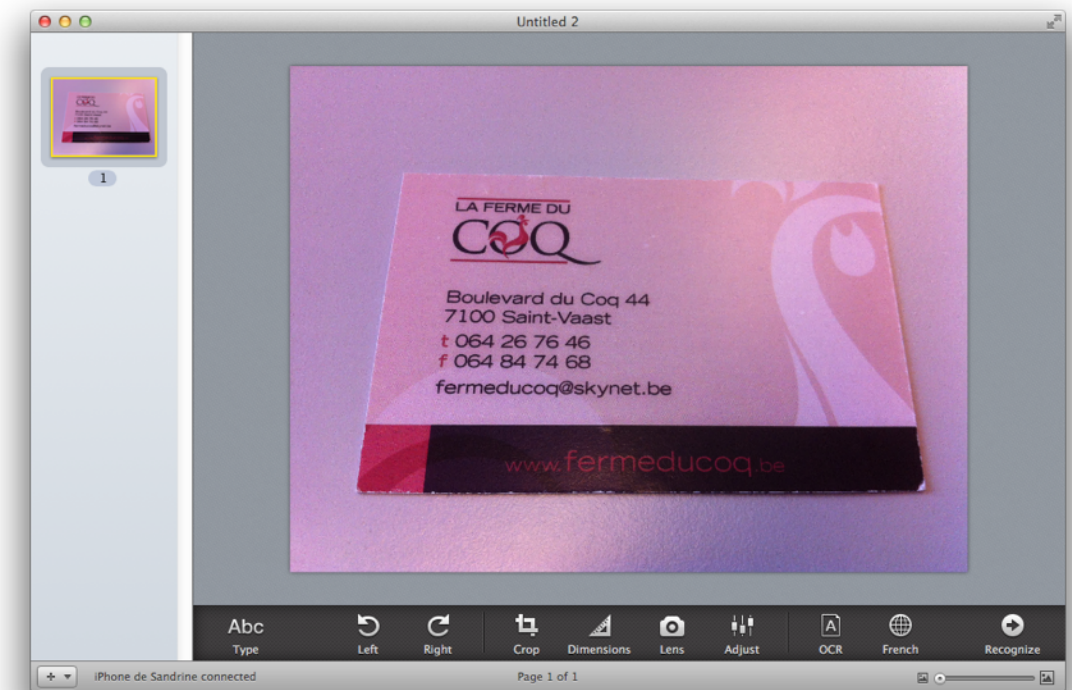
4.The picture is automatically imported into Prizmo.

IMAGE 2.3 Take Picture with Plugged iPhone (Half Tethering)

5.You can now start processing the image.

c.Full Tethering

There's even better with tethered capture. If you own a Nikon or Canon DSLR for instance, you can use full tethering. It will help you save time when processing a large book for instance.

1.Put your camera on a tripod, and set it so that the whole page will be correctly photographed. Make sure lighting conditions are good.

2.Plug your Nikon or Canon DSLR to your Mac.

3.In Prizmo's menu, choose «Page», «New Page», and then «Take Picture».

4.The picture is taken without even touching the camera, and automatically imported into Prizmo.

5.Turn the page of your book, and repeat the operation.

6.The second page will be imported into Prizmo, and listed below the 1st one in the left column.

II.From a Scanner

You can also import a document directly from a scanner.

The list of supported scanners, including most common models from Brother, Canon, Epson, HP..., is available here.

1.Click the «+» button in the lower left corner of Prizmo's main window, and select «Import from Scanner or Camera...».

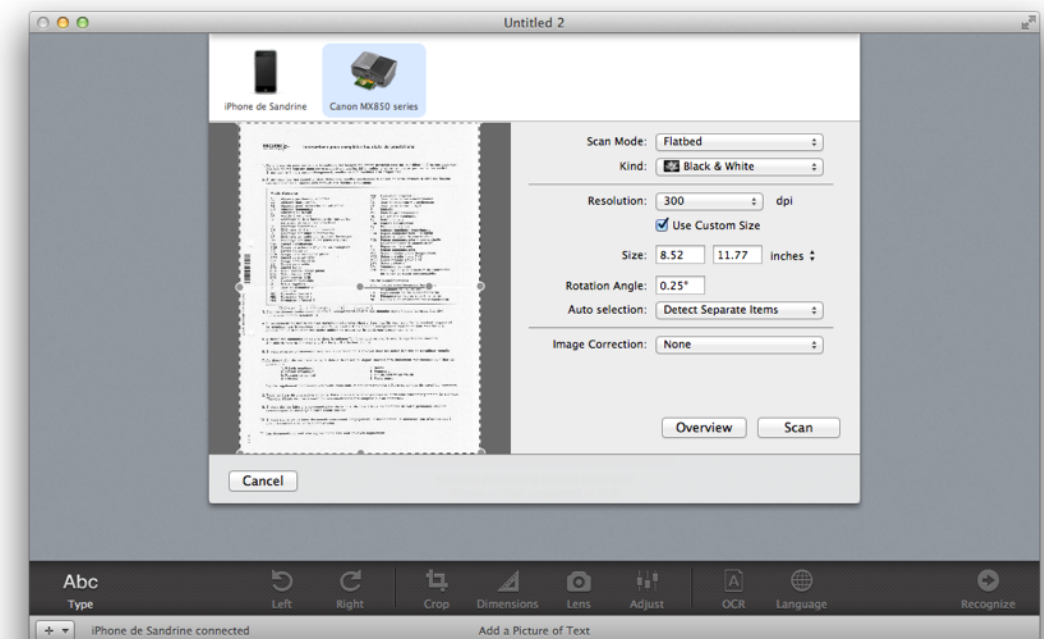2.The scanner interface opens. Select the right scanner if there are several connected to your network.

IMAGE 2.4 Import a Document Directly from a Scanner

3.Select the area that should be scanned in the document preview.

4.Choose settings like resolution, size...

5.Click «Scan».

6.The document is automatically imported.

III. From a Mac computer

Of course, you can also import images which are already saved on your Mac into Prizmo. Next to common input options, there are some less usual ways for performing OCR from your Mac, and which are unique to Prizmo: you can OCR a screenshot, and you can snap any text from your screen.

a. Common Import Options

Following import options are common to most applications for importing images:

- Drag images from the Desktop or the Finder & drop them into Prizmo's window.
- Add image file by clicking the «+» in the lower left corner.
- Copy/paste images from the Finder using keyboard shortcuts, or the menu.
- Browse image libraries (Aperture®, iPhoto®, Lightroom®…) either by clicking the «+» in the lower left corner, or by choosing «Page», «New Page», «From Image Library…» in the menu.

b. Screenshots

1. Make a screenshot of any website.

2. Import it into Prizmo.

3. Prizmo automatically detects you imported a screenshot, i.e. a low resolution image. A screenshot is usually 72 dpi, which is obviously far less compared to a 300-dpi scan. Higher the resolution, more accurate the OCR results will be of course. That's why screenshots were not suited for performing OCR, until now…

4. Prizmo applies a specific processing for increasing the screenshot resolution. This way, the screenshot becomes a high-resolution image. You can notice this in the Dimensions window: the original resolution -

72 dpi - was multiplied by 4 for a total resolution of 288 dpi. We are now pretty close to the 300-dpi scanner resolution!
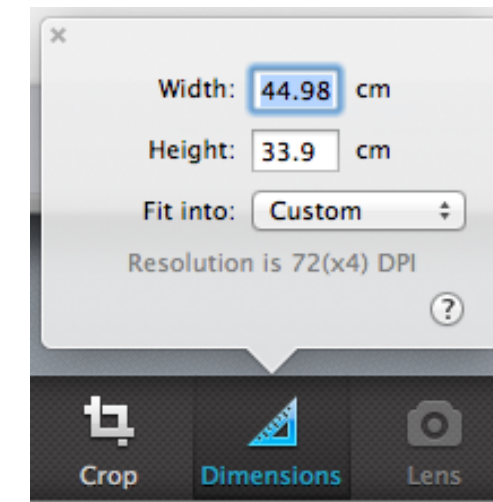

IMAGE 2.5 Screenshot Resolution was Increased (x4)

5. You can click the «Recognize» button, and launch OCR processing.

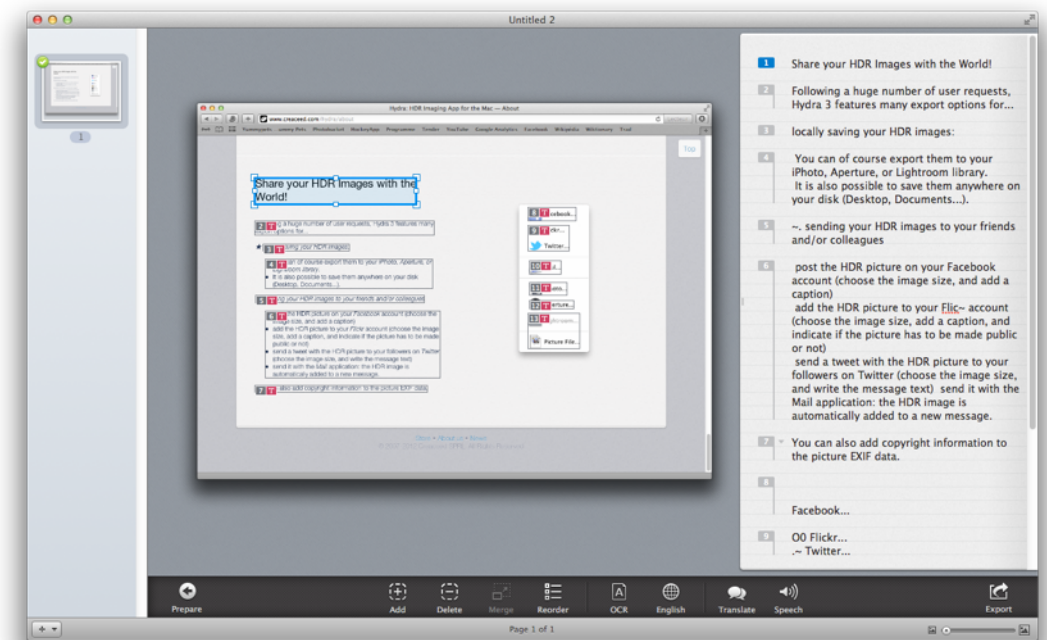6. OCR results can be previewed in the right column.

IMAGE 2.6 OCR was Successful on a Screenshot

c.Snap Text from Screen

This option is quite different from the other input options in Prizmo. You will import no image into Prizmo, but you'll be able to select text (even text which is usually unselectable), perform OCR, and copy the recognized text to the clipboard. So, it means Prizmo will do the job even if it doesn't happen directly in the main window.

1.Open the webpage, or the application... to view the text you want to select on your Mac.

2.Open Prizmo, and you'll notice the following icon appears in the

status bar (upper right corner of your screen):

3.Click this icon, and draw a rectangle around the text to select it. You can adjust the selection by moving the rectangle corners.

IMAGE 2.7 Select the Text on your Screen

4.Choose the language in the list, and click the «Copy Text» button.

5.Prizmo starts analyzing the selected text, and copies the recognized text to the Clipboard. It works with any text viewed on your screen, even if the text is not meant to be selected. As you can see in our example, you are able to select a text from the App Store℠, although it can't be selected by traditional copy/paste.

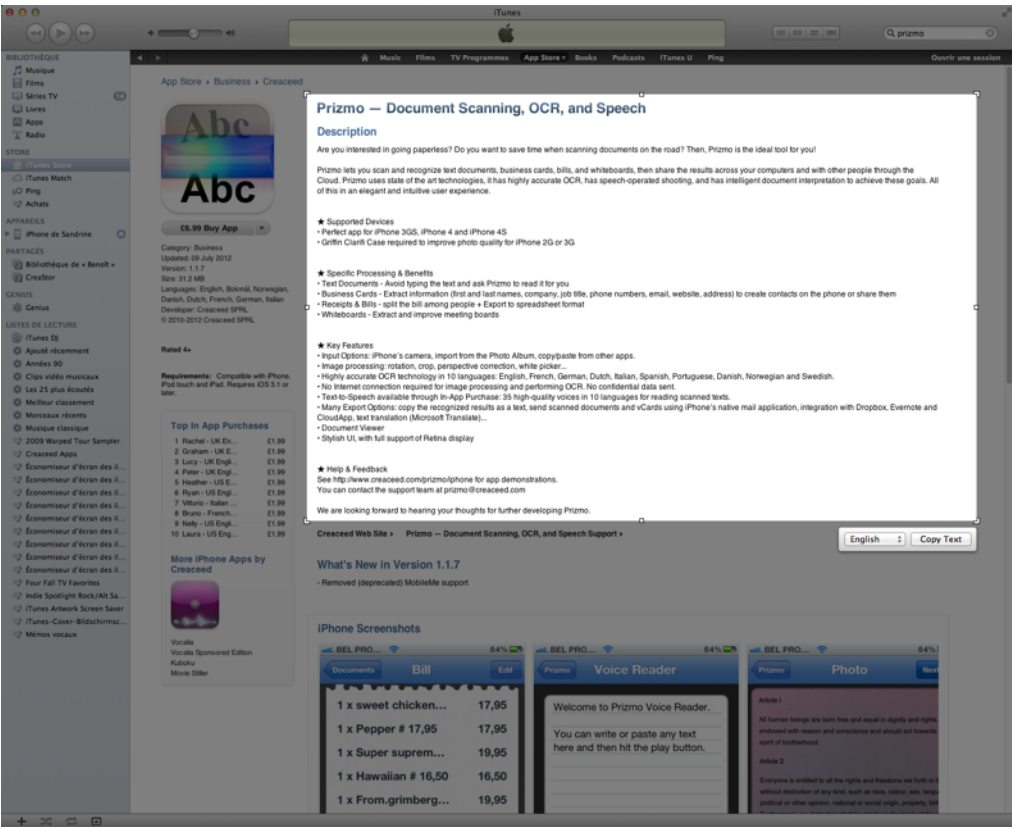6.You can then paste the text anywhere you want: Mail, Pages®, TextEdit...

IV.From iCloud

If you purchased Prizmo 2 on the Mac App Store, you can use iCloud for storing a Prizmo project. This will enable you to start processing a long document on your Mac Pro® at the office, to save the work in progress as a Prizmo project into iCloud, and to finish processing on your MacBook Air® when you are back home.

1.Imagine you received a 100-page report by regular mail from the local administration. You need to save a digital copy of this report in order to share it with other people at your company.

2.You use the office scanner for scanning all pages, and sending them to Prizmo.

3.Save the Prizmo project on your Mac.

4.Prizmo performs OCR on the pages, and as it is a very important document, you need to check if the whole text was properly scanned, if text regions are correctly ordered... You start to check the recognized text in the late afternoon, but you have to go back home. Don't worry, iCloud will help you with this...

5. Click «File» in the menu, and choose «Move to iCloud». The Prizmo project is automatically saved on iCloud, and you'll be able to access it from any other Mac.

6.You are now back at home. As you have to make the document available to everybody asap, you want to finalize it tonight. No problem, you can open the report for further processing as the project is saved on iCloud. Click «File» in the menu, choose «iCloud Documents», and select the project in the list.

7.When the document is ready, you can export it, and send it to your colleagues.

8.Now that the document is ready, you can delete the Prizmo project from iCloud. Click «File» in the menu, and choose «Remove from iCloud».
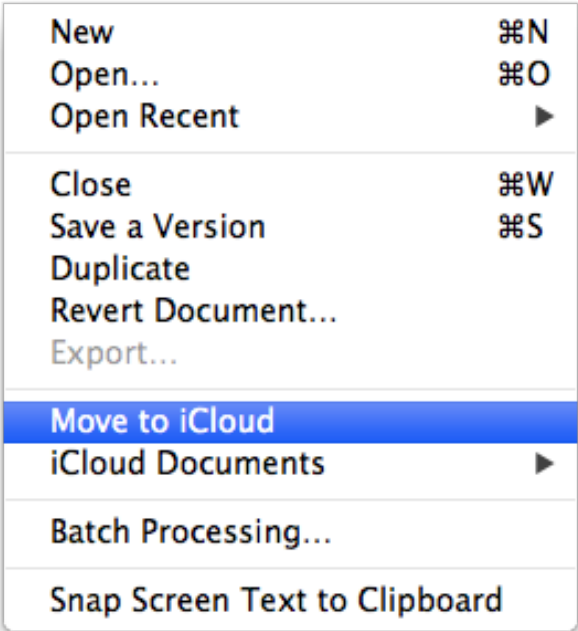

IMAGE 2.8 Share Prizmo Projects across Macs using iCloud

Image Mode

As you can import pictures taken with a camera, there might be more on the picture than just the original document. So, you might need to crop the picture to fit the page frame.

Or, imagine you want to select only part of the text. You took a picture of a magazine, and there are 2 articles on a single page. You can very easily move the frame to select only the article you are interested in.

1.Open the Crop window, and click the «Frame» tab.

2.Click the «Auto Detect» button. Prizmo 2 includes a feature for automatically detecting the page frame. Contrast between the page and the background is necessary to detect page frame efficiently. So, always put the page on a clean desk before taking the picture (avoid your grandma's flower tablecloth).
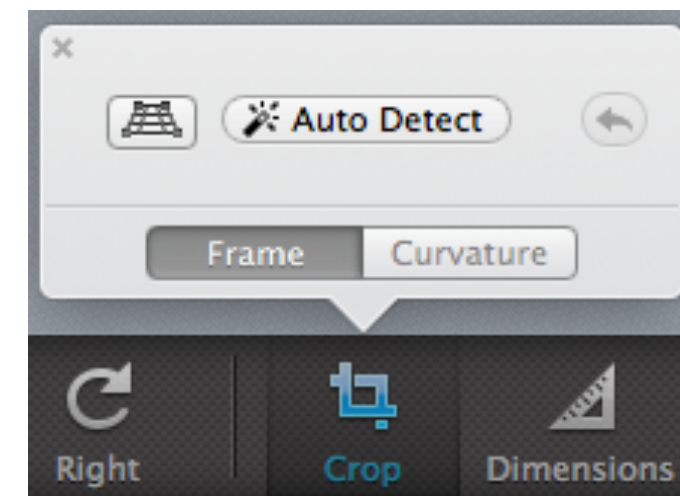
IN A NUTSHELL

1. Prizmo can automatically detect the page frame, or you can select the area on the page.

2. Prizmo relies on page dimensions and resolution for performing OCR accurately.

3. You can correct page curvature on pictures of books and magazines, in order to get more accurate OCR results.

4. Calibration models are used for correcting lens distortion on pictures taken with a digital camera.

5. Invert colors for processing documents with light characters on a dark background.

6. Check the text is readable before launching OCR processing.

IMAGE 2.9 Crop Window

3.If the automatic detection wasn't successful, or if you want to select only part of the page, you can move the white grid in Prizmo's main window.

4.Pay attention to the following icon: ⊞. It is used for locking and unlocking perspective within Prizmo. When perspective is locked, you
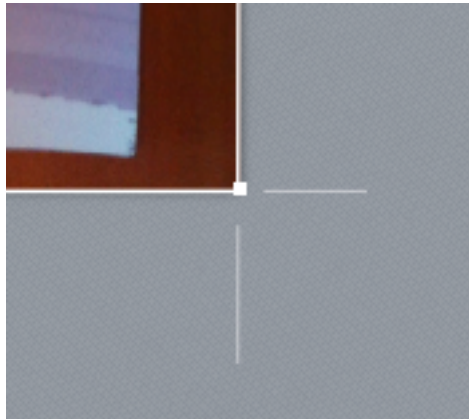

IMAGE 2.10 Detail Showing Perspective is Locked

can move the grid corners, but perspective will remain unchanged. So, you might need to click this button in order to unlock perspective, and move freely the grid corners.

5. You can always reset the selection grid to the full image by clicking ⟲.

II.Using the Right Dimensions

Page dimensions should be those of the real-life photographed or scanned document.

- For scanned documents: page dimensions are automatically set up when importing the page from the scanner.

- For photographed documents: you can set the default page size in Prizmo's Preferences. If need be, you can change the format, and you can type new values in the «Width» and «Height» fields for custom-sized documents.

When you change the size, Prizmo automatically adapts the image resolution (dpi) to preserve all pixel data. Page dimensions and resolution have an effect on OCR results, so be careful to use the right data when processing documents. Moreover, resolution below 200 dpi will generally lead to poor results, and a new - better - image might be needed in such cases.

It also affects the printed page size. If you intend to print the output PDF later, set the right size in Prizmo right from the start.

III. How to Recognize Text near the Binding?

Page curvature is typically visible on scanned books and magazines. Prizmo can straighten such pages in a few steps, so that words near the binding will lead to more accurate OCR results.

1. Open the Crop window, and click the «Curvature» button.

2. Check the «Curvature correction» box. 2 additional points appear, and the grid shape changes. These points should be set on the highest and lowest parts of the page, in order to correct curvature.
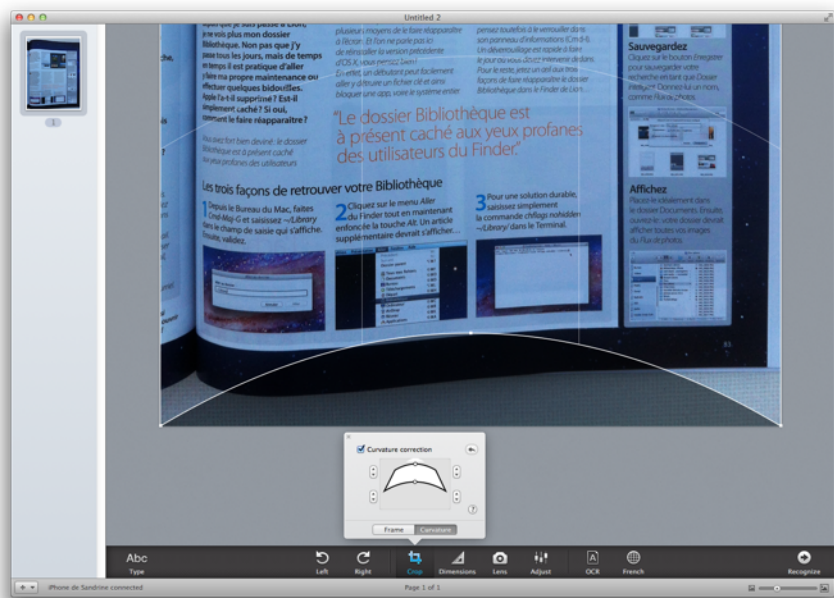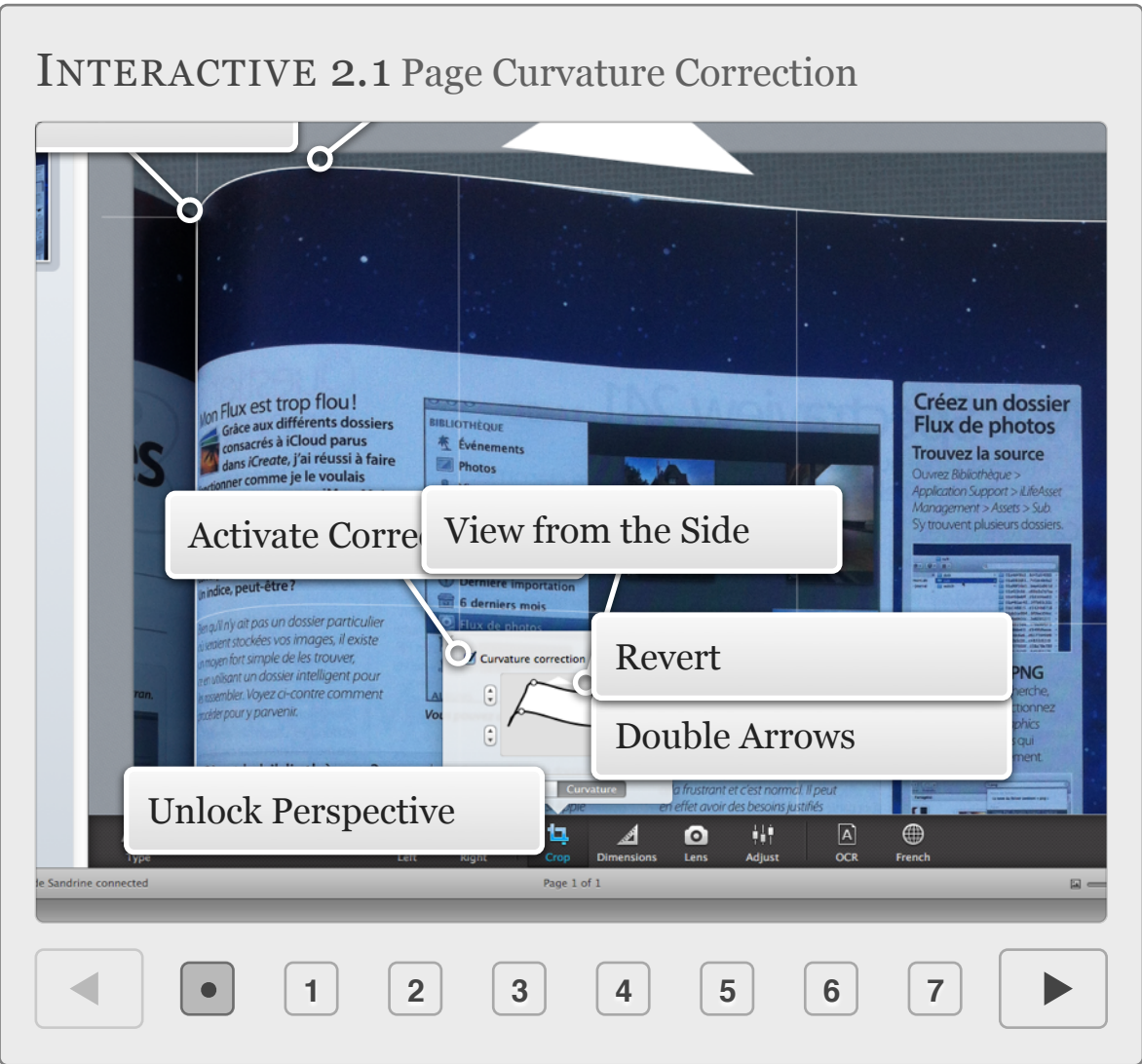

IMAGE 2.11 Additional Point for Correcting Curvature

3. The first step is to model page boundaries in the image itself. Move each grid corner to locate it on the respective page corner. Pay attention, you might need to unlock perspective to achieve this properly.

4. Select the point which appeared on top of the grid, and move it until it is located on the highest point of the page.

5. Do the same with the point which appeared at the bottom of the grid, and move it until it is located on the lowest point of the page. Tip: You

can move the picture preview within Prizmo by holding the Alt key while moving the picture with the mouse.

6. The top and bottom sides of the grid should now get the same shape as the page. Use the arrows to move the grid sides until they perfectly fit the page shape. There are 2 buttons for the top side, and 2 buttons for the bottom side (respectively, one for the section left to the highest/lowest point, and one for the section to its right).

7. Because curvature might not be visible on pictures taken from above, you might need to further edit curvature parameters. The drawing shows the page curvature profile as viewed from the side. The drawing gets updated every time you move a point in the preview.

INTERACTIVE 2.1 Page Curvature Correction

Activate Corre View from the Side

Revert

Double Arrows

Unlock Perspective

IV. How to Prevent Straight Lines from Looking like Curves on Pictures Taken with a Camera?

Most cameras create distortions in images, as a result of light passing through their lenses. Images appear elongated near their borders, and this is even more noticeable with shorter focal lengths.

Prizmo allows to correct that distortion either by calibrating your camera (more information about this in Chapter 4), or reusing calibrations shared by other users. Corrected images display straight lines everywhere (even near the borders), and usually provide better OCR results. Correcting lens distortion is therefore a real plus.

1. Open the Lens window. On top of the window, camera information is displayed: camera model, lens and zoom. This information determines which calibration model is suited for the picture(s) to be processed.

2. Check the «Lens Correction» box.

3. Prizmo automatically applies the best calibration model available, either locally or online. The preview gets updated, and the corrected picture is displayed.
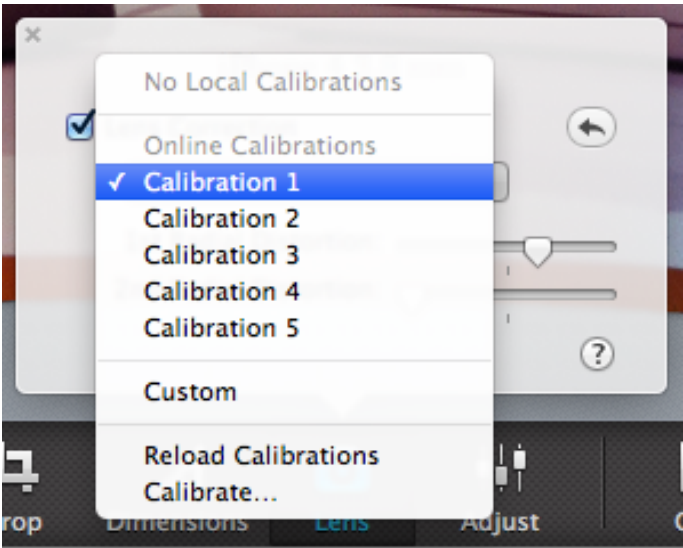
4. Open the drop-down list to check which calibration models are available. Each model has its own score, which enables Prizmo to sort them. This means that Calibration 1 should be better than Calibration 5.

5. Click «Reload Calibrations» to download the 5 best calibrations available online (these calibrations were made by other Prizmo users).

6. If there's no calibration model available online, you can create your own model by clicking «Calibrate...». Steps for calibrating your camera are described in detail in Chapter 4.

7. If the picture you want to process was taken with a camera which is not digital, you can correct lens distortion by selecting «Custom» in the list. Then, you have to move the «Radial Distortion» sliders.
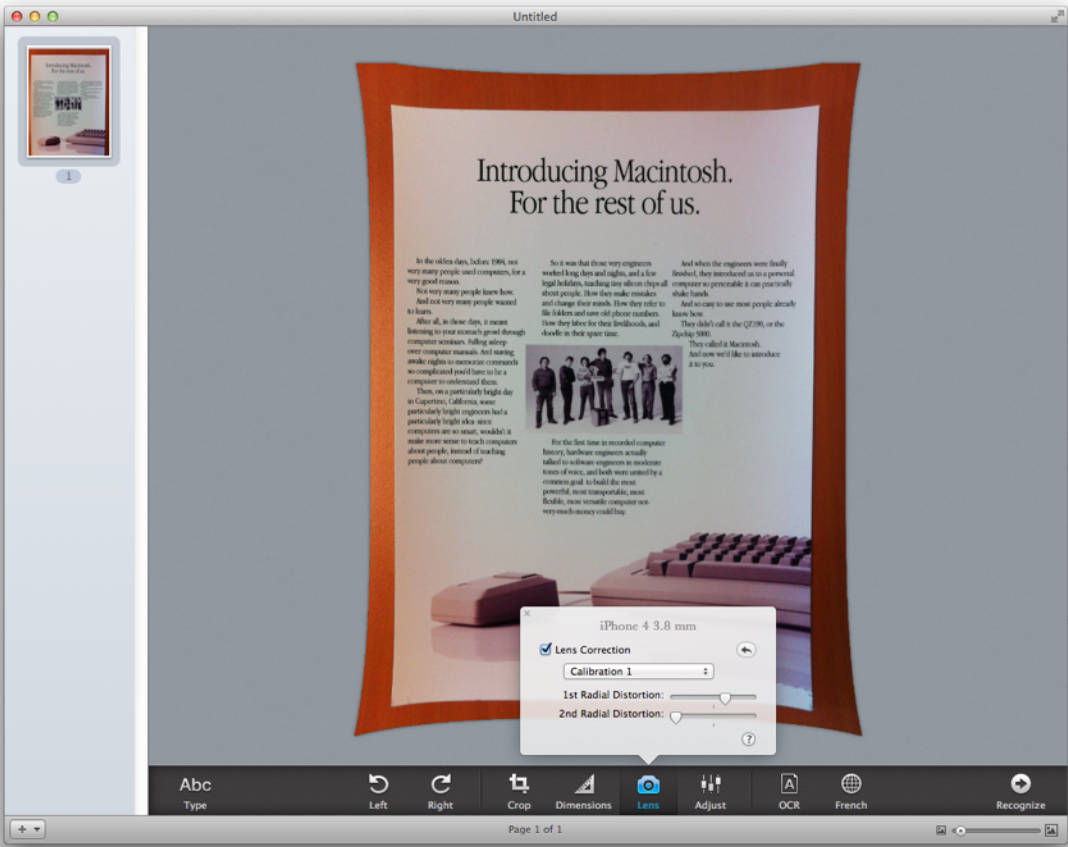

IMAGE 2.12 Check Available Calibration Models

IMAGE 2.13 Preview after Lens Distortion Correction

V.How to Process an Image with Dark Background?

Most documents we use every day have black characters on a white background (letters, invoices, newspapers...). Most of them does not mean all of them. Business cards, magazines, flyers... often have a dark-colored background.

Prizmo's default processing pipeline is for these standard documents (i.e. with dark characters on a light background). In the example below, we imported a business card with white characters on a black background. The preview shows how the OCR engine will see the card: several black areas with indistinctive contours. Performing OCR on this card would be totally useless.

Don't worry, you can nevertheless handle this document without any problem. There's indeed a feature for inverting colors in Prizmo. Open the OCR window, and check the «Invert» box. The preview is automatically updated, and now shows black characters which can be read easily. You can still improve this by moving the «Readability» slider. When you are satisfied, you can launch OCR processing.

IMAGE 2.14 Standard - Unsuccessful - Processing for a Business Card with Dark Background

IMAGE 2.15 Invert Colors for Successfully Processing Documents with Dark Background

VI.How to Prepare the Page for OCR?

OCR stands for Optical Character Recognition. The technology improved a lot the last 20 years, but it will always need an input picture of decent quality for delivering accurate results.

First of all, Prizmo includes a technology for automatically detecting blurry pictures. If the picture can't be used, a warning message will ask you to make a new shot.

Moreover, you couldn't realize until now if the picture was good enough or not. That's why as soon as you open the OCR window, Prizmo updates the preview which gets black & white. It shows you the picture as the OCR engine actually «sees» it. This will help you determine if the text is readable. If it isn't, you can improve this...

Zoom in, and check if the text can be read easily on the whole page. Move the «Readability» slider until you get a satisfying result (characters neither too thin, nor too thick). On the one hand, if characters are too thin, it will be difficult for the OCR engine to recognize them. On the other hand, if characters are too thick and there are many black spots everywhere on the page, the OCR engine will try to recognize characters in these spots.

If you imported a low-resolution picture, you should improve its resolution by moving the «Resolution» slider.
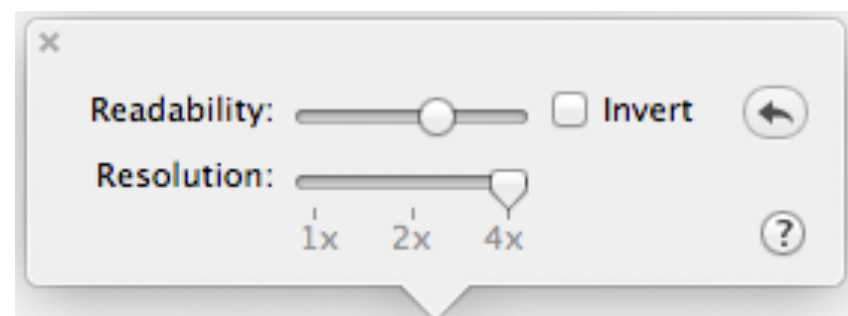

IMAGE 2.16 Improve Picture Resolution up to 4 Times

However, bear in mind that a 10-MP image becomes a 160-MP image that may require additional processing time. Use the resolution increase setting wisely.

Besides, make sure you selected the right language before launching OCR processing. This also will have a major impact on the OCR accuracy.

GALLERY 2.1 Check Text Readability
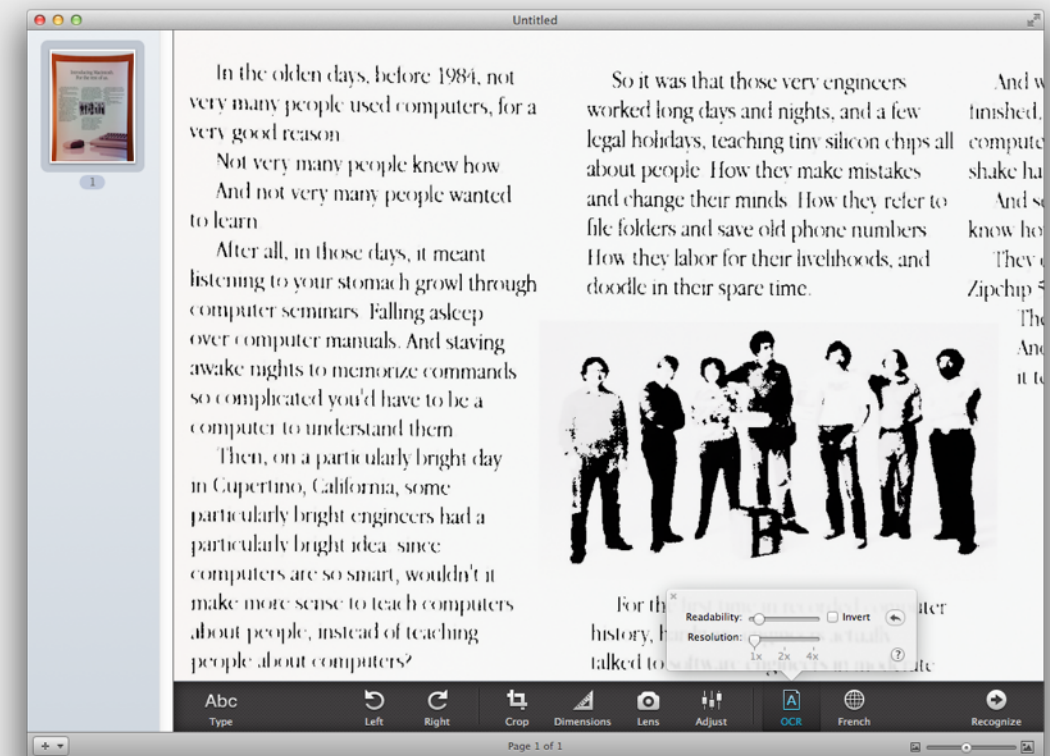
Characters are too thin. The OCR engine won't be able to recognize the distinctive elements of each letter.

VII.How to Install an Optional Language for OCR?

There are 10 built-in languages for OCR in Prizmo: English, German, Dutch, French, Italian, Spanish, Portuguese, Danish, Swedish and Norwegian. It means Prizmo already includes everything it needs for performing OCR in these languages.

Prizmo supports 30 additional languages, but we made them optional in order not to overload your Mac. You can select the language(s) which will be useful for you, download it as a package which will be installed on your Mac. You don't have to download the 30 languages if you actually need only one.

Here are the languages available as free downloads: Afrikaans, Albanian, Basque, Belarusian, Bulgarian, Catalan, Croatian, Czech, Esperanto, Estonian, Finnish, Galician, Hebrew, Hungarian, Icelandic, Indonesian, Korean, Latvian, Lithuanian, Macedonian, Malay, Polish, Romanian, Russian, Serbian, Slovak, Slovenian, Swahili, Turkish, Ukrainian, and Vietnamese.

1.Open Prizmo's Preferences, and select «OCR».

2.Locate the language you need in the list, and check the box.

3.Prizmo asks you to confirm the download.

4.If you click «Download», the requested language is automatically downloaded and installed in Prizmo. Prizmo can from now on perform OCR in this language as well.

5.Go back in Prizmo's main window, and open the OCR Languages window. The language you have just downloaded is now available in the list for performing OCR.

6.You can download additional languages later, at any moment. Besides, there's no limit to the number of languages you can handle with Prizmo simultaneously.
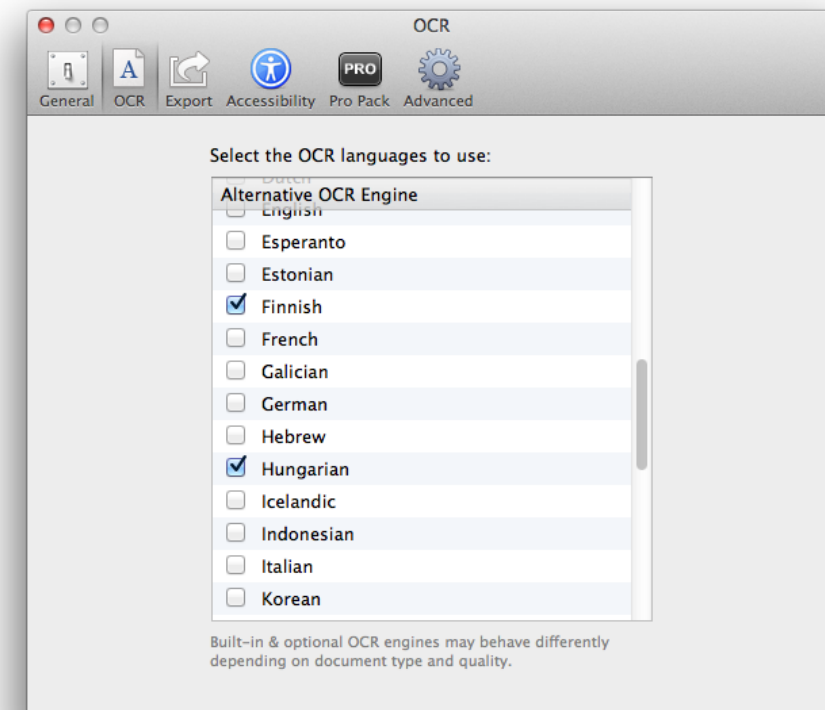

IMAGE 2.17 Choose the Language to be Downloaded in Preferences

Text Mode

The previous section dealt with the Image Mode and everything you could do to prepare and improve the picture before launching OCR processing. You clicked the «Recognize» button, and entered the Text Mode. Characters were recognized, and text regions were created. You can now check if Prizmo did a good job, and correct if need be.

I. How to Adjust Selection?

As soon as you click the «Recognize» button, Prizmo analyzes the document content. It adds regions where it locates content, and assigns a type to each one:

- Text Regions (⊤ label in the preview): Prizmo detected text characters.

- Numeric Regions (label in the preview): Prizmo detected text characters, and identified them as numbers.

- Image Regions (label in the preview): Prizmo detected some content, but no text characters.

If the type is not correct for some regions, you can easily correct this by selecting another type. Select the region in Prizmo's preview, right-click, and choose «Region Type». Then, you can select the right type in the list.
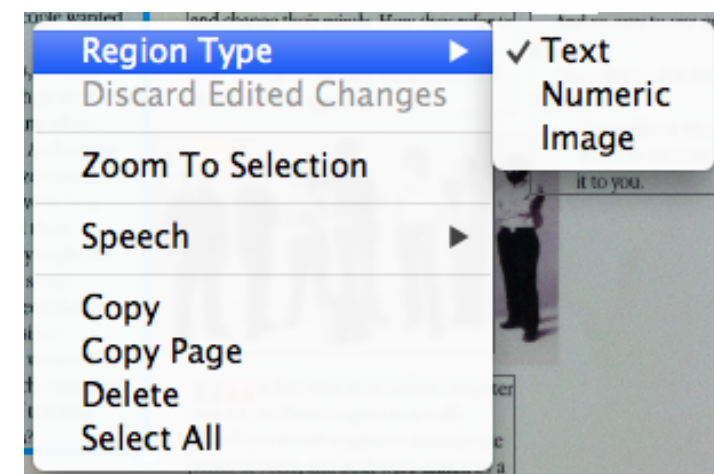

IMAGE 2.18 Update Region Type

After changing the region type, Prizmo automatically analyzes the region content again, and updates the right column.

Besides, you can adjust region size at will. Select a region in the preview, and move the handles which appearead. You can make the region bigger or smaller, wider or taller this way.

IMAGE 2.19 Resize Regions with the Handles

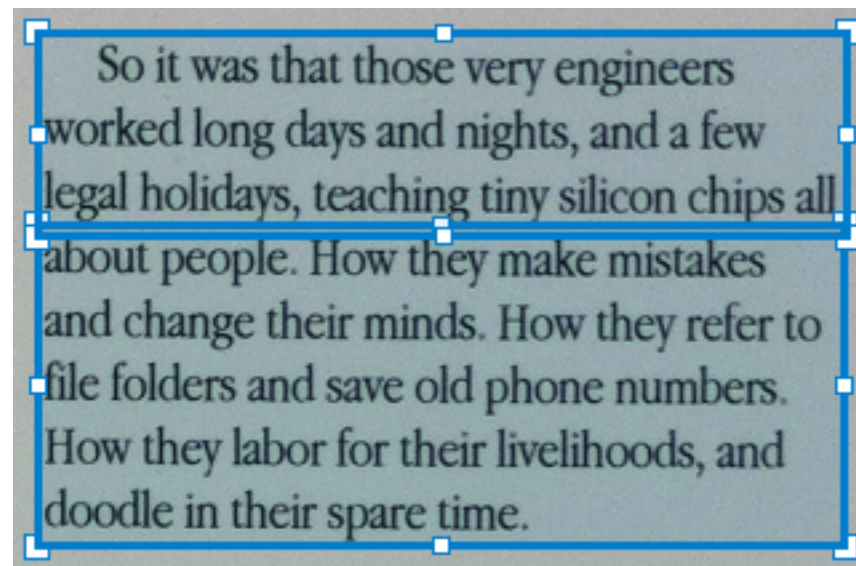What is more, the number of regions is not fixed. You are free to add, delete, and merge regions using the buttons in the bottom toolbar.

IMAGE 2.20 Select Several Regions and Merge Them

II.How to Keep the Document in Order?

When exporting the OCR results, you want paragraphs to be in the right order. Correcting this manually in the output document would be tiresome indeed. Prizmo has a feature for this too...

All regions are numbered, and the number is visible in the upper left corner of the related region in the preview. The preview in the right column also relies on these numbers for ordering recognized content.

If the region order is not correct, you can easily fix this:

- Select a region in the right column. Its number gets blue. Then, drag the region to an area separating 2 other regions. An horizontal blue line appears where you can drop it. The region is moved, and numbers are updated accordingly.

- Click the «Reorder» button in the bottom toolbar. Numbers are replaced by dots both in the preview and in the right column. You can now reorder all regions by selecting them successively. The 1st region you click will be #1, the 2nd one will be #2, etc. You have to select all regions in order to complete this operation.
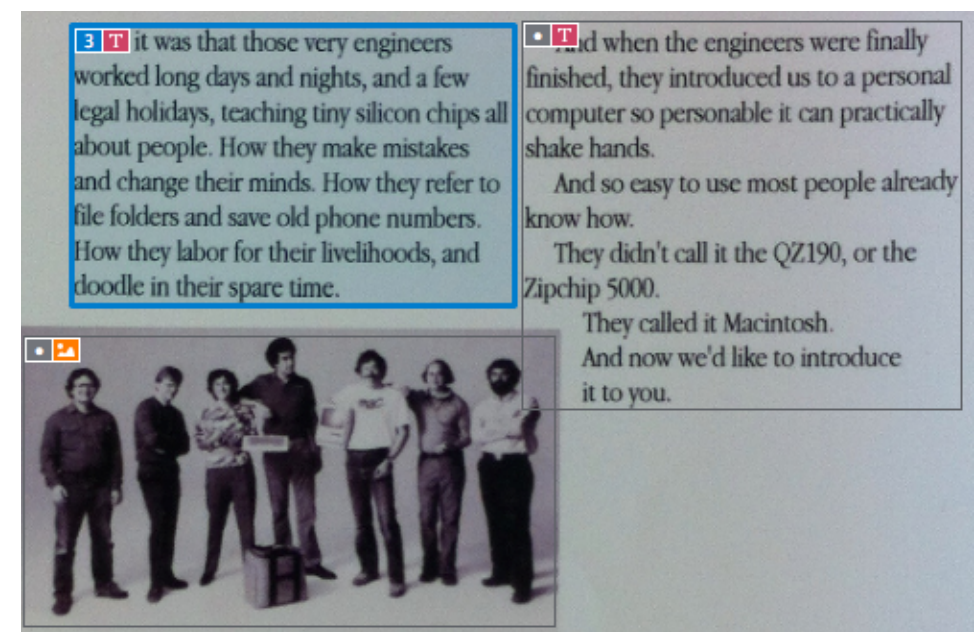

IMAGE 2.21 Reorder Regions

III.How to Correct Spelling Errors?

Although Prizmo relies on a state-of-the-art OCR technology, 100% accuracy can seldom be reached. The number of errors is highly related to the input picture quality, and to the font used for printing the document. No worry, you can edit the text and correct mistakes very easily within Prizmo.

a.When processing Text Documents

Errors are red and underlined. The text in the right column is editable at will. Use the mouse for placing the cursor at the right location in the text. You can then delete text, and type new one without limitation.
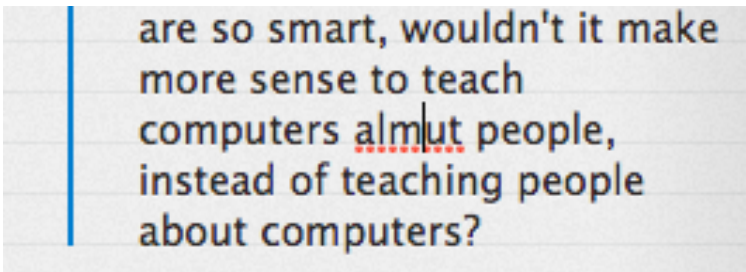
IMAGE 2.22 Correct Errors Like in any Text Editor

b.When processing Business Cards

You can edit the text in the right column after affecting it to a business card field.
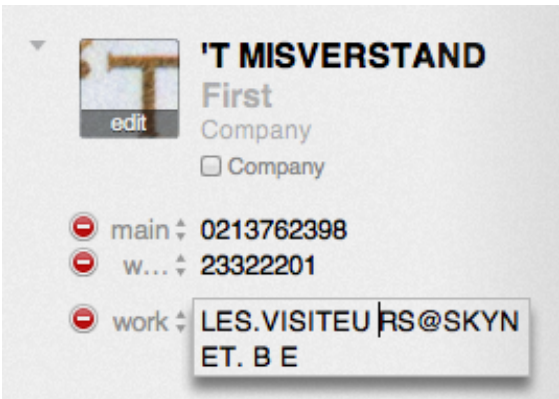

IMAGE 2.23 Edit Business Card Information

IV.How to Improve OCR Accuracy?

We have already described how to optimize pictures before launching OCR in Chapter 2, Section II, part VI. The features available in Image Mode are for improving the picture as a whole. Some fine-tuning is available in Text Mode.

Document lighting might differ between the top and the bottom of a single document. So, you might need to set the «Readability» slider at a specific value for the picture top, and at another one for the picture bottom. You can do this in the OCR window in Text Mode. Select the text region, and move the «Readability» slider. This text region will be the only area affected on the document. The remaining part of the document will keep the «Readability» setting as selected in Image Mode.
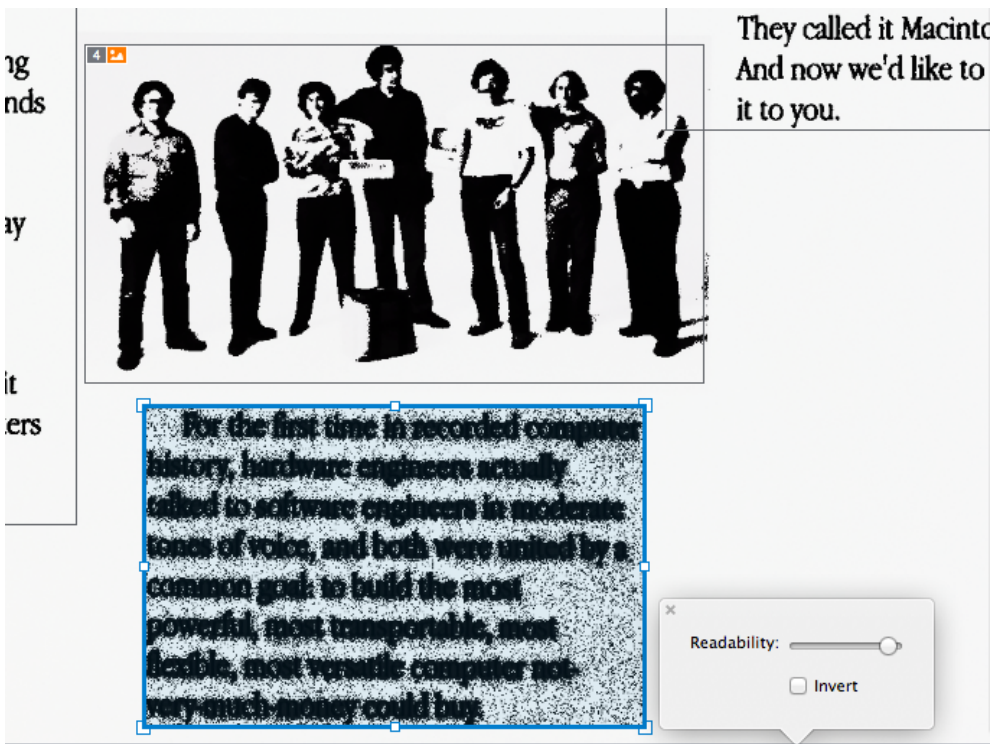

IMAGE 2.24 Update Text Readability for Each Region

Moreover, you can similarly invert colors only for the text region you selected.

V. How to Translate?

Once the text is recognized, you can of course export it in .pdf or .rtf, but there are additional export options. For instance, you can translate it into 23 languages using Microsoft's online translation services.

Select a text region, open the Translate window, and select in the list the language the text has to be translated into. Make sure you are connected to the Internet for performing this operation. The translated text will replace the recognized text in the right column.
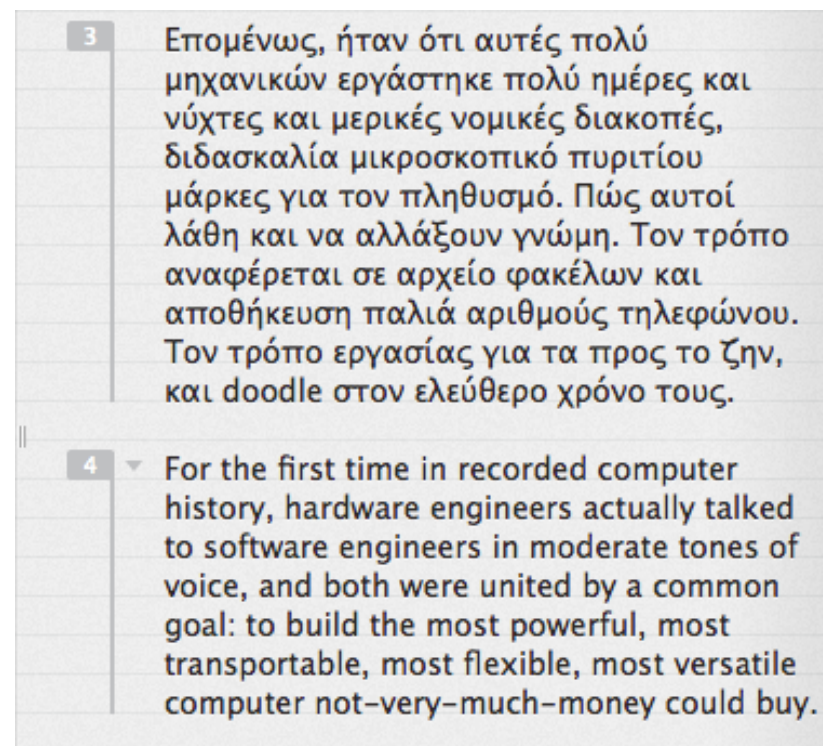

IMAGE 2.25 Translate any Text Region

You can go back to the recognized text at any time, by selecting the source language in the language list.

Remark:

The translation feature is only available from and/or to the following languages: Arabic, Simplified Chinese, Traditional Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hindi, Hungarian, Italian, Japanese, Norwegian, Polish, Portuguese, Romanian, Russian, Spanish, Swedish, and Turkish.

In other words, you can process OCR in Albanian, but you can't translate the recognized text, as Albanian is not listed among the languages supported for translation.

VI.How to Read Text Out Loud?

Recognizing text is a first step, but you can go even further by asking Prizmo to read it for you, using speech synthesis.

1.Open the Speech window, and select a voice in the appropriate language.

2.Click the Play button. Prizmo starts reading the selected text region. You can easily recognize the region which is being read by its blue dotted frame.
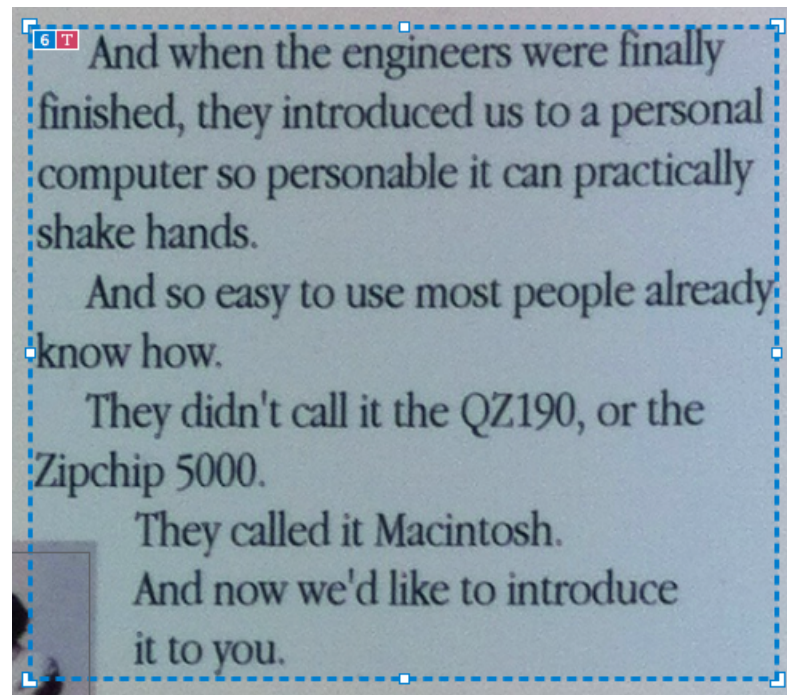

IMAGE 2.26 Blue Dotted Frame Around the Region Being Read

3.When Prizmo finished reading text region #1, it will automatically start reading the next text region in line, i.e. text region #2. Region order matters for using this feature as well (see Section 3, part II).

4.You can adjust the speaking rate by moving the related cursor: go to the left for reading more slowly (turtle icon), or to the right for reading faster (rabbit icon).

5.You can see the progress of reading in the right column. The word which is being read is highlighted in yellow. This could be a real plus for learning foreign languages.
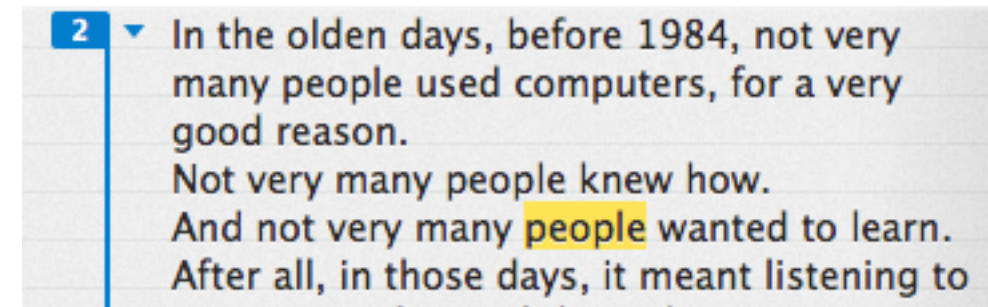

IMAGE 2.27 Prizmo Highlights Word Being Read

6.If you want to jump further in the text, double-click another text region, and Prizmo will start reading it.

Remark:

If there's no voice available yet in the required language on your Mac, click «Speech Preferences...», open the «System Voice» drop-down list, and click «Customize». Then, choose a voice to start downloading it for free. There are around 80 voices in 26 languages available.

Pro Pack

Prizmo includes several Pro options which were made for users who need to process a large number of text documents. This chapter is dedicated to these Pro options which are available in what we call the «Pro Pack»: batch processing, Automator action and custom scripts.

Batch Processing

Prizmo's batch processing feature enables you to recognize many documents in a row.

1.Click «File» in Prizmo's menu and choose «Batch Processing...». A new window opens.

2.You can import your text documents or document folders in 2 ways:

- drag them from the Finder or Desktop, and drop them in the «Batch Processing» window
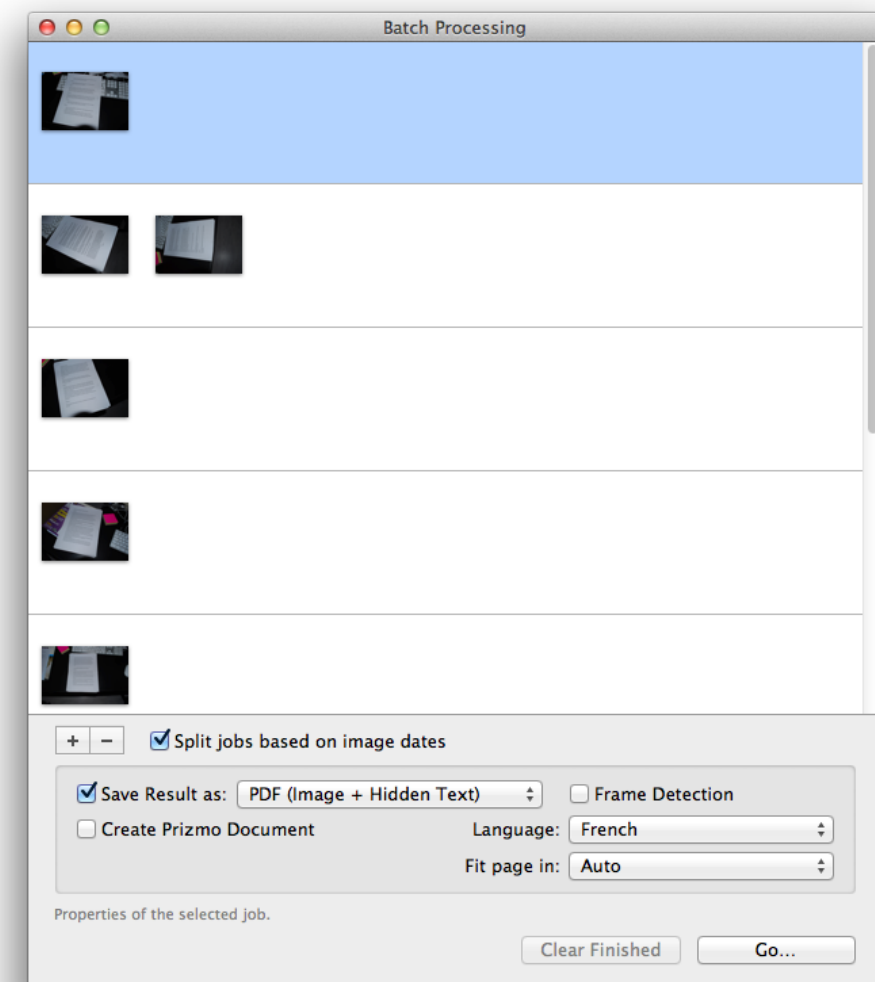- select them using the «+» button.

IMAGE 3.1 Batch Processing Window

3.Prizmo sorts and groups together documents depending on their dates (if the related box is checked).

4.If a document or document job wasn't meant to be included in batch processing, you can correct this very easily:

- Remove a whole job of documents: select the job using the mouse, and click the «-» button.
- Remove a single document from a job: select the document, right-click, and select «Delete» in the menu.

5.If sorting happens to be mistaken, you can fix this by moving the document, either to add it to another job, or to create a new job.

6.For each job individually, you can choose several settings before launching batch processing:

- the output format: PDF, PDF (Image + Searchable Text), RTF, TXT
- whether the page frame should be detected
- the OCR language
- the document size
- if you want to create a .pzdoc project for fine-tuning the settings.

7.Click «Go...» to start batch processing, choose the location where to save the recognized documents on your Mac, and have a coffee break!

8.Prizmo processes document jobs successively starting from the 1st one in the list. You can see the progress next to the miniatures:

shows Prizmo is currently processing the job.

shows processing is over for the job.

9.If need be, you can interrupt batch processing by clicking the «Stop» button.

10.After a break, click «Clear Finished» to remove all already processed jobs from the list. This will give you a better idea of what Prizmo has left to do. Then, click «Go...» to relaunch batch processing.
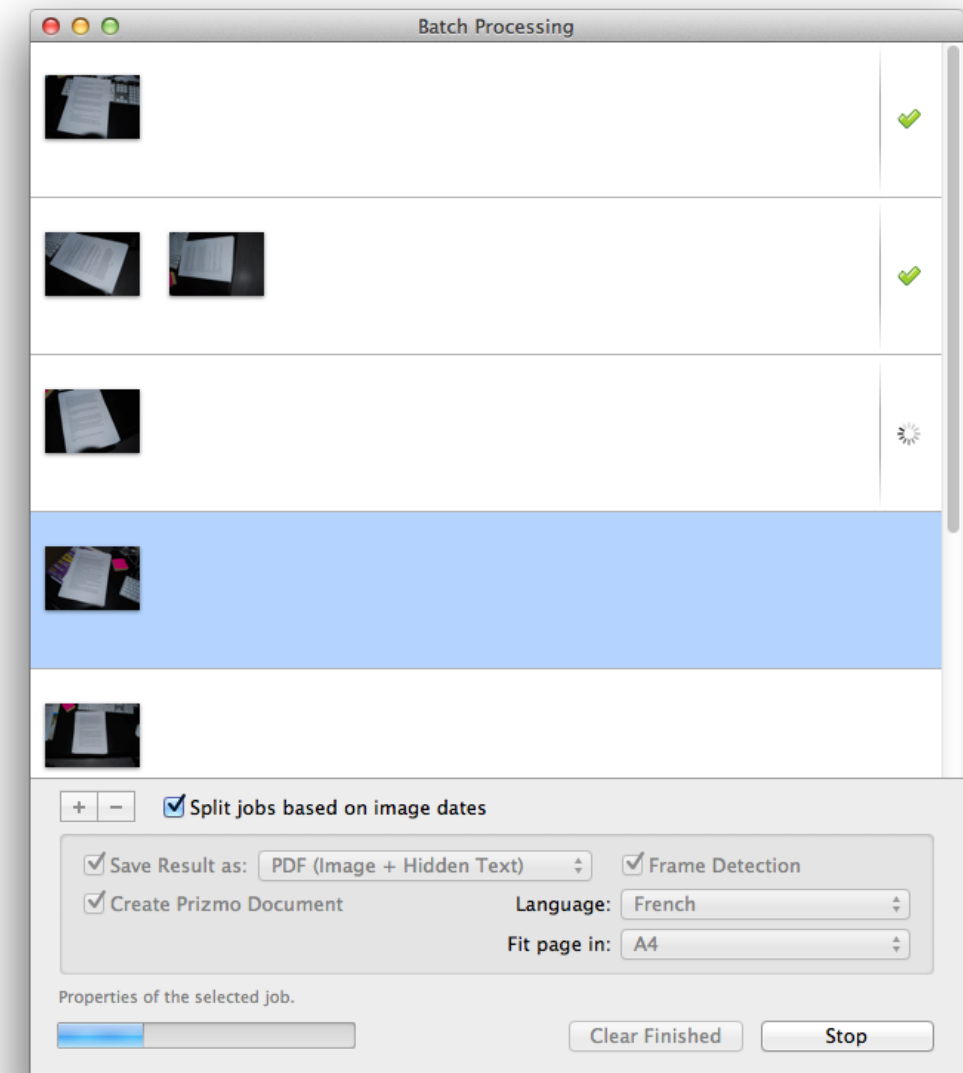

IMAGE 3.2 View Batch Processing Progress

Automator Action

I. Creating a Smart OCR Folder with Automator

Here you'll learn how to create a folder that automatically converts image files into searchable PDFs each time a file is dropped into it.

1. Start Automator.app on your Mac.

2. Choose File > New, choose Folder Action as a type.

3. On the right side of the window, choose the folder. You can create a folder named "OCR - English" on your desktop, and select it.

3. In the left part of the window, search "Perform OCR" in the action list. Double-click it.

4. The action is added to the smart folder, you can further choose output format, PDF (Image + Searchable Text) for instance, and output file name, for instance, OCRed.

5. Save the document in Automator, pick a name like OCR - English, and quit Automator.

6. In the Finder, locate an image file with text. Drop it to the "OCR - English" folder on your desktop.

7. Prizmo is triggered by Automator, and a PDF is created on your Desktop alongside the smart folder.

Remark:

You can further chain additional actions after Prizmo's Perform OCR, like zipping, upload, whatever. It is a powerful tool that can be integrated into any workflow. And it is not limited to making smart folder, you can even create custom applications (droplets). The possibilities are endless.

In short, you have a full OCR capability that can be easily integrated into any kind of process.

IN A NUTSHELL

1. Prizmo can be operated from Automator.

2. Prizmo defines an Automator action that can be integrated into Automator workflows.

3. This action is "Perform OCR", and appears in Automator action listing.

4. Real-life example # 1: you can create smart folders that will convert image files into searchable PDF any time a file is copied inside of them.

5. Real-life example # 2: you can automate the download of image files from Internet and automatically OCR them with Prizmo.

Custom Export Scripts

In a Nutshell

1. When the Pro Pack is activated, Prizmo offers to use custom export scripts.

2. Custom export scripts will take Prizmo output (PDF, Text, or image) to further process or export them.

3. You can, for instance, compress Prizmo output as zip files and send them to a company server. Once the script is written and installed, Prizmo sees it, and lists it in its export options.

I. Create and Install a Custom Script

1. Make sure you have activated the Pro Pack (otherwise, this option is not available).

2. Open Prizmo's Preferences, go to the «Export» tab.

3. Click the Script section.

If Prizmo's script folder doesn't exist, a warning is displayed. You should create the folder in the Finder yourself as required by OS X new security policies.

4. Create the scripts folder if needed at the displayed location.

5. Now create a simple script and put it in that folder. Open TextEdit and create a new document.

6. Make sure the document is in Plain Text format (Format > Make Plain Text).

7. Add the following contents to the file:

```
#!/bin/sh

open -a Preview "$1"
```

This a bash script that basically opens Prizmo's first output file with Preview.

8. Save the file to the script folder you created before, and name it "openInPreview.sh".

9. Now that file should be made "executable". Open Terminal.app.

10.Navigate to the script folder using "cd" commands:

(Mac App Store Version of Prizmo 2)

cd ~/Library/Application Scripts/com.creaceed.mas.prizmo2

or

(Direct Download Version of Prizmo 2)

cd ~/Library/Application Scripts/com.creaceed.prizmo2

11. Make the script executable:

chmod +x openInPreview.sh

12.Back to Prizmo's Preferences, notice that the script is now listed.

13. Select the script you've just created in the list.

II. Run the Script on Export

Now you can create a new Prizmo text document, and recognize the text.

1. Click the «Export» button in the toolbar, notice the Script option is now available.

2. Choose "Script...".

3. Choose other export options as you normally do (format, etc.).

Prizmo creates the output file, and then invokes the script. The script opens the output file in Preview.

III. Script Formats and Sample Scripts

Prizmo supports both Shell scripts and AppleScripts. You can get example scripts at the following location:

http://www.creaceed.com/prizmo/faq

They are provided as a package. That package creates the script folder as explained above, and copies the sample scripts in there so that they are immediately available in Prizmo.

Camera Calibration

Calibrating your own camera only takes a few minutes of your time, and can help you achieve really better results when you use Prizmo with photographs. With a good calibration model, Prizmo can indeed correct lens distortion on your shots.

How to Calibrate your Camera

IN A NUTSHELL

1. Using a calibration model helps you correct lens distortion on your photographs.

2. 3 settings are used in a calibration model: camera model, lens type and zoom.

3. You can download compatible calibration models from Creaceed's servers.

4. If there are no compatible models, you can create your own, upload it to Creaceed's servers, and share it with other users.

I. Introduction

A calibration model is linked to the combined use of a particular camera, lens and zoom.

Here is a real example (for a single zoom):

➟ If you have 2 cameras, you have to make 2 calibration models.

➟ If you have a single camera and 2 lenses, you have to make a calibration model with each lens.

➟ If you have 2 cameras and 3 lenses, you have to make 6 calibration models (unless you are sure you are never going to use one of your cameras with a specific lens).

➟ Etc.

II. Calibrating your Camera

1. There are several ways to launch the Calibration Assistant:
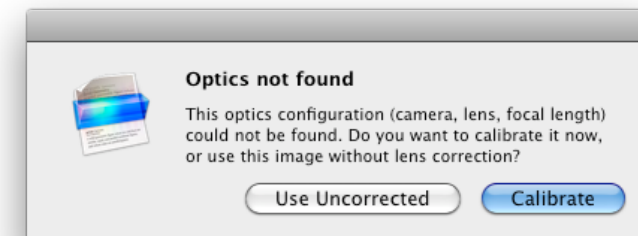
IMAGE 4.1 No Calibration Model Available

• choose «Calibrate…» in the drop-down menu in the Lens window (the «Optics not found» message appears when Prizmo can't find any compatible calibration model in the database)

• or choose «Window» in the menu , and then «Camera Calibration Assistant»

• or click ⌘K.
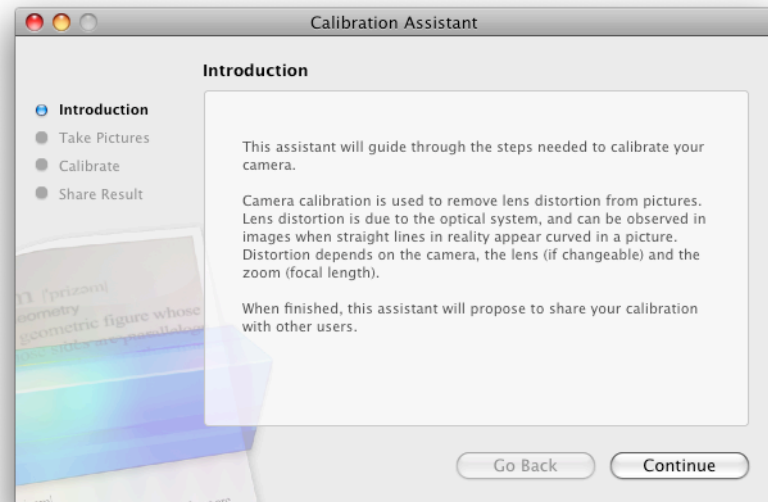
IMAGE 4.2 Calibration Assistant Introduction

2.Click «Continue».

3.Select how you plan to photograph the pattern:

- click [icon] to display the pattern on your flat screen
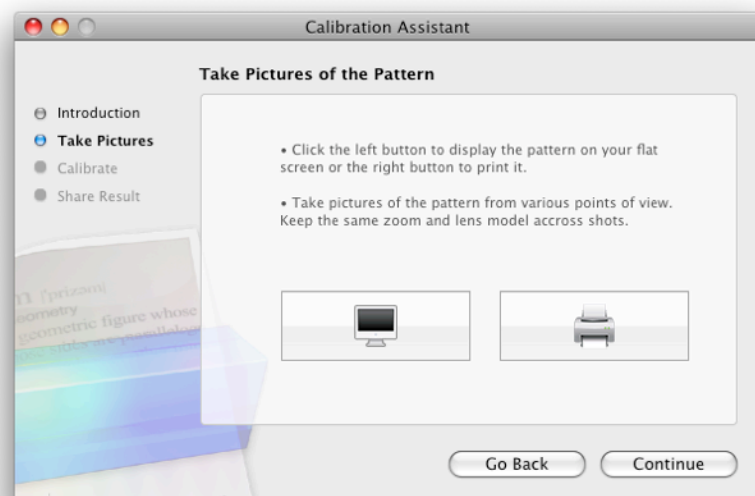- or click [icon] to print it.

IMAGE 4.3 Select How to Shoot the Pattern

4.Take some pictures of the pattern. Please follow the guidelines:

- You should take as many pictures as possible (at least 5, advised 10 to 15).
- The pattern should be as big as possible within the image (otherwise, Prizmo will reject the image).
- On each photograph, you should see the whole pattern in black and white with some white around the pattern.
- From different points of view: from the left, from the right,
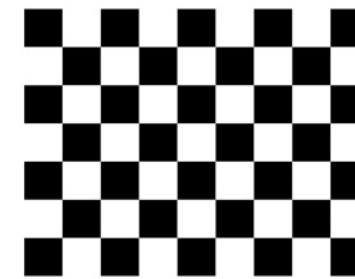
IMAGE 4.4 Calibration Pattern

straight in front of the pattern, etc.

5.Import the photographs of the pattern:

- by dragging and dropping them to the assistant window
- or by browsing your computer using + / -
- or by browsing directly your camera [icon] .

6.When you are ready, click «Calibrate».

7.Prizmo automatically analyzes the imported photographs to detect the pattern.

8.You can see on which photographs Prizmo managed to locate the pattern by the ✓ sign. If there are too many ✗ signs, you should take some additional pictures, import them and restart calibrating.
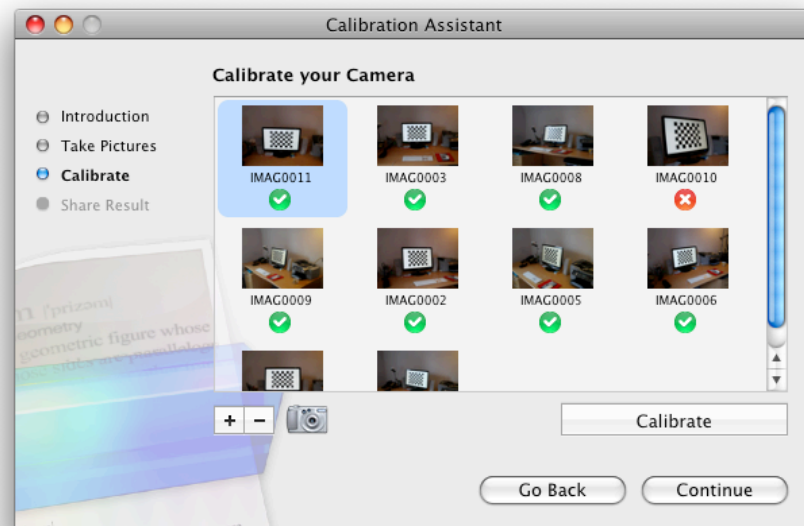

IMAGE 4.5 Pattern Detection Feedback

9.Click «Continue».

10.It is the last step:

- click ⬆ to upload the calibration results to Creaceed's servers so that other people with the same camera as yours can skip the calibration process, and use your calibration results.

- or click «Done» to quit the calibration assistant.

IMAGE 4.6 Share your Calibration Model

User Guide - Prizmo 2

Responsible Editor: Sandrine Loiseau