CrossOver Linux Users Guide

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Chapter 1

Introduction

CrossOver Linux allows you to install your favorite Windows applications in Linux. Some people use CrossOver for office productivity applications, such as Microsoft Office or Quicken. Other people use CrossOver to play their favorite Windows games, such as Half-Life or Skyrim. CrossOver lets you run a wide, wide variety of Windows applications on Linux.

CrossOver works by running the actual Windows applications. Because no CPU emulation is involved they run at full speed on your system. They also integrate with your mail client and desktop environment, making it possible to view Word, Excel or PowerPoint attachments, or to open these file types from the desktop or file managers.

Important
CrossOver Linux manages applications using "bottles". A bottle is a virtual Windows environment with its own isolated C: drive, fonts, registry, and software.
Bottles are especially useful when installing unsupported software or when testing the behavior of a new application. They can also be used to run different versions of the same program (Microsoft Office, for example) at the same time.

CrossOver Linux is easy to install, and requires a small footprint on the system.

Chapter 2

Quick Start Guide

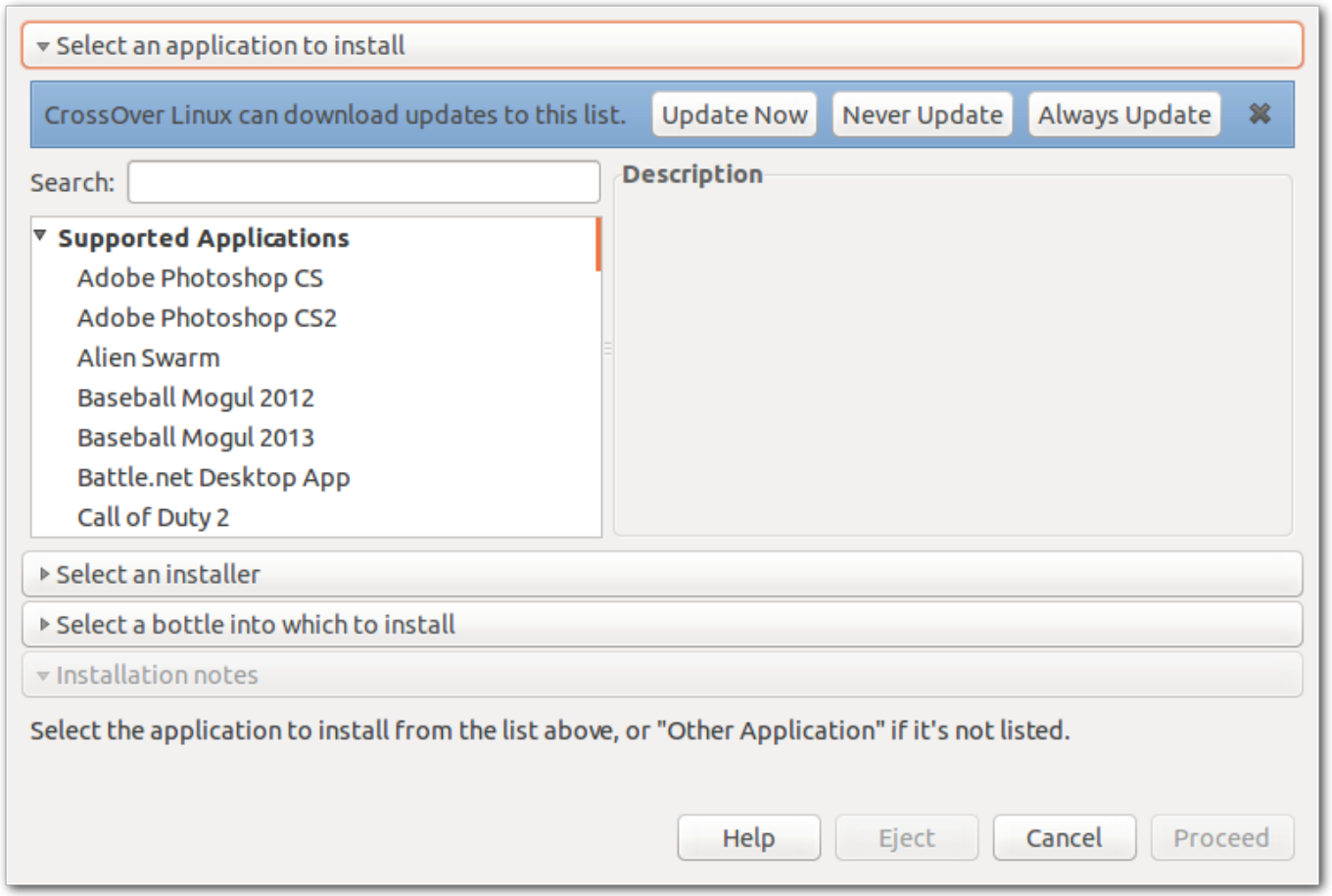
If you are familiar with other versions of CrossOver or you are comfortable making mistakes, this chapter should get you started running Windows software in a few minutes. For greater detail about the concepts and features in CrossOver Linux consult the later chapters in this guide.

Installing CrossOver In order to best fit most needs CrossOver is available as a Debian and RPM package and also as a generic graphical installer. To install the Debian and RPM packages please refer to your Linux distribution's documentation. For the graphical installer, simply mark it as executable and run it. For more details see the Installing CrossOver Linux section of this guide.

Starting CrossOver The graphical installer will automatically start CrossOver when the installation is complete. For the Debian and RPM cases, and if you need to start it at a later time, look for a CrossOver icon in your desktop environment menus.

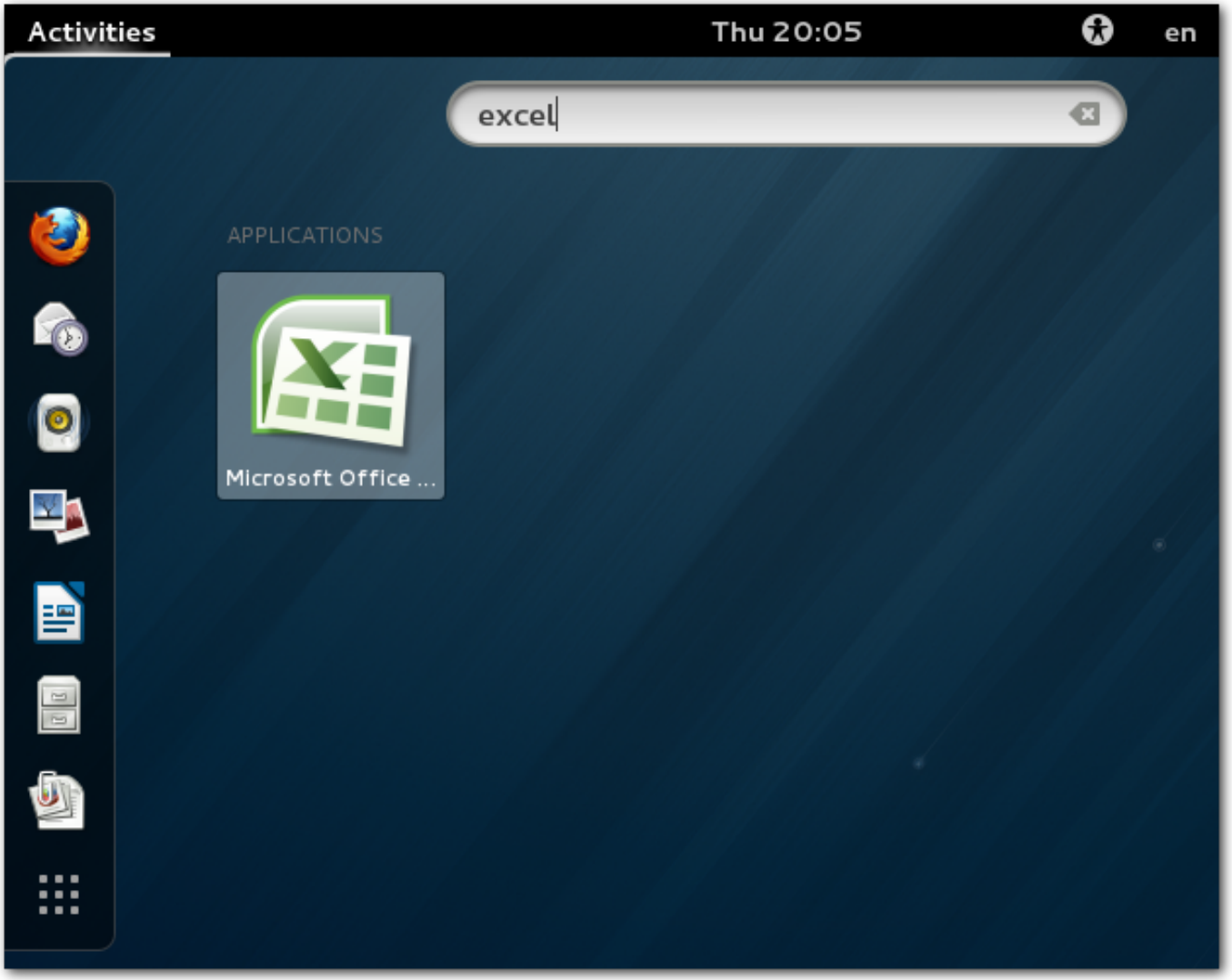
The first run The first time you launch CrossOver, you should see the window below (if you are upgrading and already have Windows applications installed, you should see them on the right-hand side of the window below):

Installing a Windows program To install new Windows software, click the Install Windows Software button. The CrossOver Software Installer (pictured below) will appear. You can search for and select the application you wish to install. If the program you want to install is not specifically named, select Other Application.



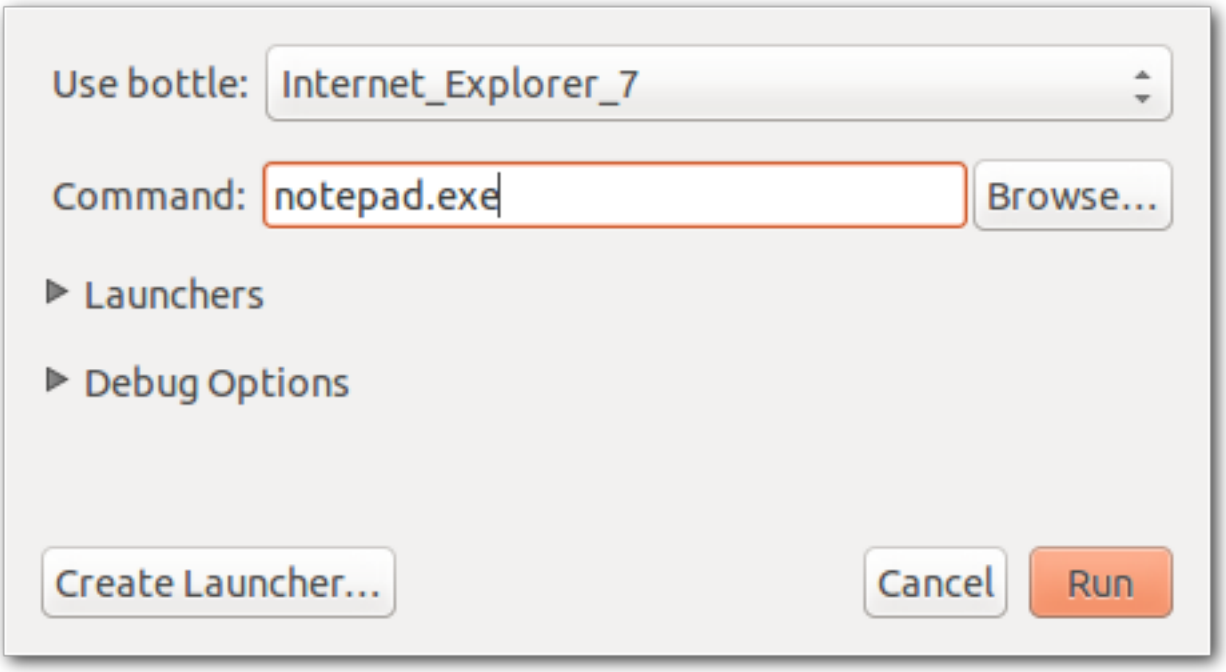
Running a Windows program If all went well, CrossOver's main window is now populated with launchers for the Windows applications you have installed. You can click on these icons to run your Windows applications.

CrossOver also integrates your Windows applications with your desktop environment, so you can launch them just like you would any other program on your computer. For example, if you have installed Microsoft Excel and are using Unity or GNOME 3, you should be able to simply type `excel` in the search bar and find a working shortcut.



Of course, the screenshot pictured above is specific to GNOME 3. The exact nature of CrossOver's integration with your desktop environment depends on what desktop environment you use. If you cannot make use of CrossOver's desktop integration in your particular environment, CrossOver's main menu is always available to you.

If your program did not create any icons, you can still launch it through the Tools → Run Command... menu.

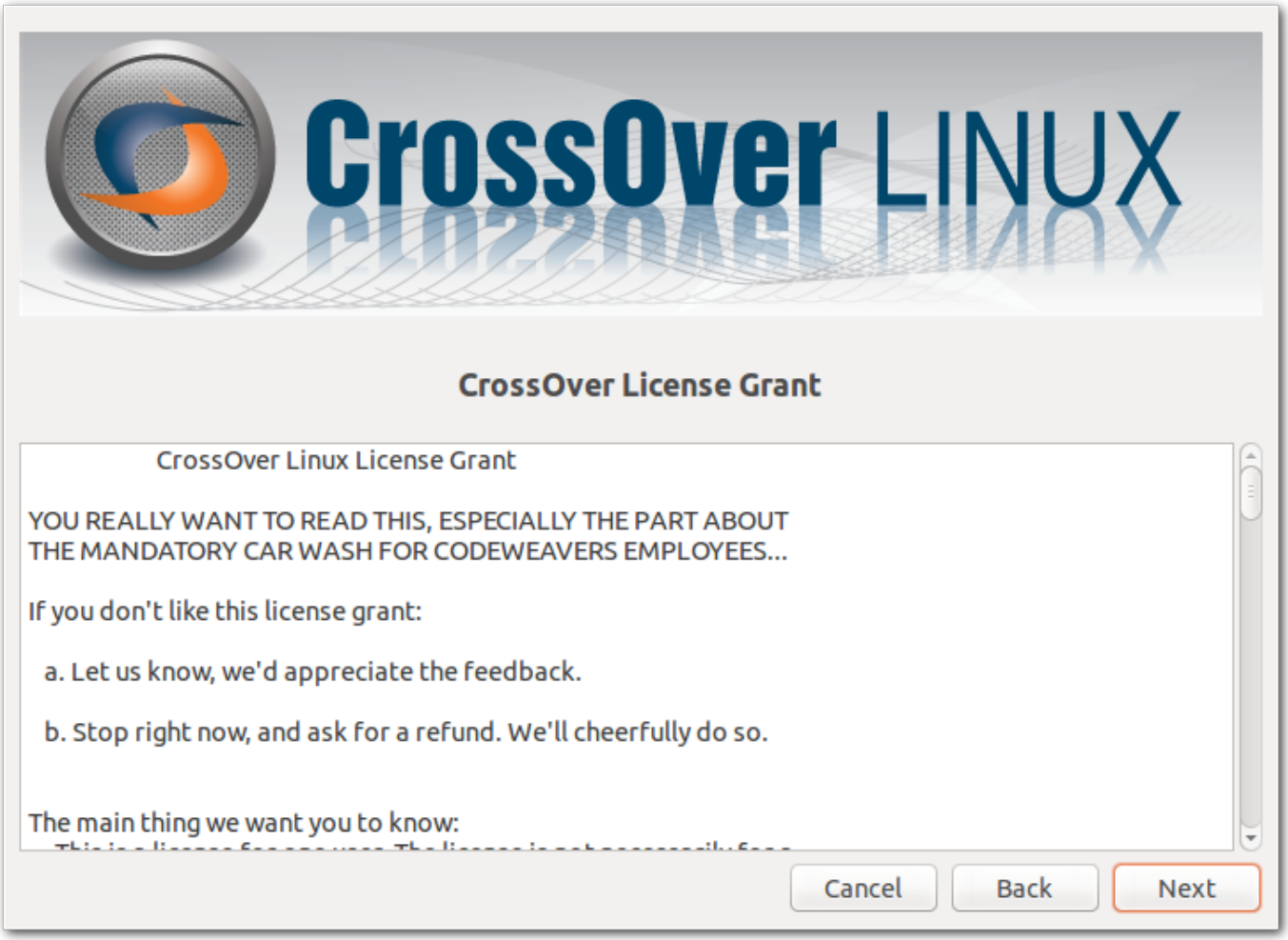

Use bottle:
Internet_Explorer_7
Command:
notepad.exe
Browse...
Launchers
Debug Options
Create Launcher...
Cancel
Run

Have fun!

Chapter 3

Installing CrossOver Linux

CrossOver Linux can be installed via the Debian or RPM package management systems. In addition, you can install using our graphical installer. This installer is especially useful if you wish to install in a single user account.



Upgrading To upgrade, simply run the installer for the new version and it will upgrade CrossOver while preserving your settings as well as any application already installed. Note, however, that it is highly recommended to uninstall CrossOver before switching between different installation modes.

3.1 Choosing an installation mode

You can install CrossOver Linux in two different modes. The installation mode will determine who can run CrossOver, where Windows software is installed, and who can run each Windows application.

3.1.1 User mode

When installed as a single user, the CrossOver environment will be set up for one account only. Only that user will be able to install and use Windows applications.

If you are installing CrossOver on a personal computer for private use, you should use this installation mode. It is the easiest, simplest, and safest installation method.

File locations The CrossOver application will be installed in `~/cxoffice`. Windows applications and configuration files will be placed in `~/.cxoffice`.

How to install Log in as the user who will be using CrossOver and locate the installation script. It will usually be called `install-crossover-19.0.1.bin` but may have a different name, especially if you downloaded it. Once you have found the installer, run it as follows:

```
$ sh install-crossover-19.0.1.bin
```

Tip
User mode is only available via the graphical (.bin) installer. Debian and RPM installations can only be completed system-wide.

3.1.2 Shared mode

Shared mode allows you to install CrossOver so that each user on the system can install and run the Windows software of his or her choosing. Each user will have their own set of private bottles.

If you are installing CrossOver for use by multiple users, you should use this installation mode. New users are easy to add, and corrupt or unwanted Windows environments can be easily erased or replaced.

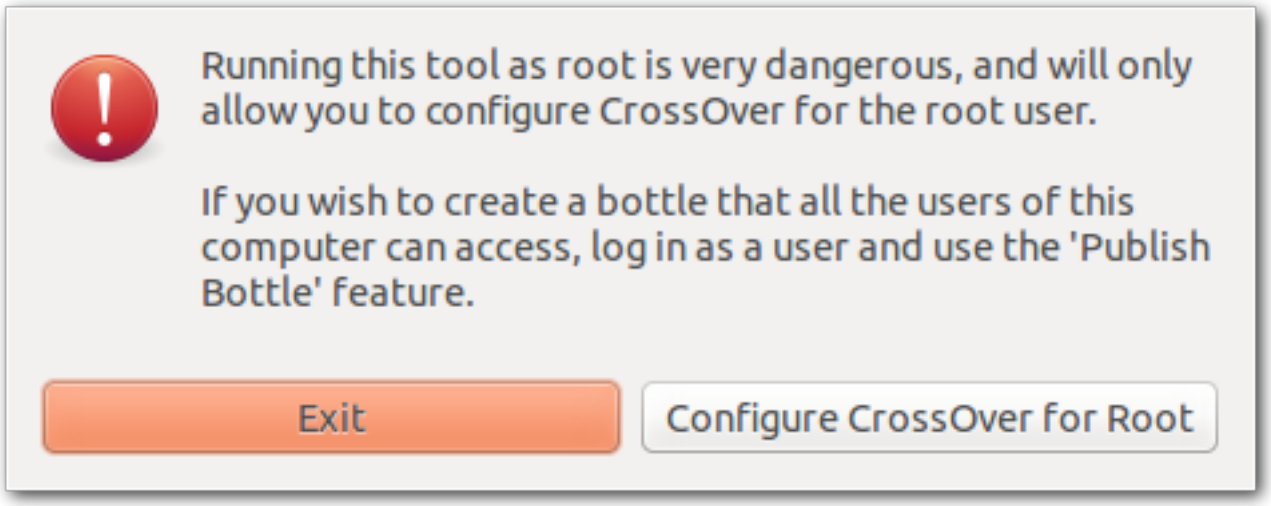
File locations The CrossOver application will be installed in `/opt/cxoffice`. Each user's bottles will be placed in `~/.cxoffice`.

How to install Log in as root and locate the installation script. It will usually be called `install-crossover-19.0.1.bin` but may have a different name. Once you have found the installer, run it as follows:

```
# sh install-crossover-19.0.1.bin
```

Once the installation completes, click Exit. Now, when a user runs CrossOver for the first time they will be able to install Windows software using the Windows software installation wizard.

Tip
Installing Windows applications as root in this install mode is almost certainly pointless. These applications would be usable by root and root alone.



Which installer format to choose. CodeWeavers provides installers in .bin, .rpm. and .deb formats. You should choose the installer appropriate for your system and your preferences. Be aware that the using the .bin installer on a 64-bit system may require you to install additional 32-bit packages.

Chapter 4

Registering CrossOver

When you download CrossOver from the CodeWeavers website, you have a trial version which will last for 15 days. This trial version has all the functions and features of the full version. Any Windows software that works on a full version will also run in the trial version, and vice versa. The important limitation of the trial version is that bottles can only be used for 15 days. This means that any Windows packages that you install using the trial version will cease to work no more than 15 days after their installation.

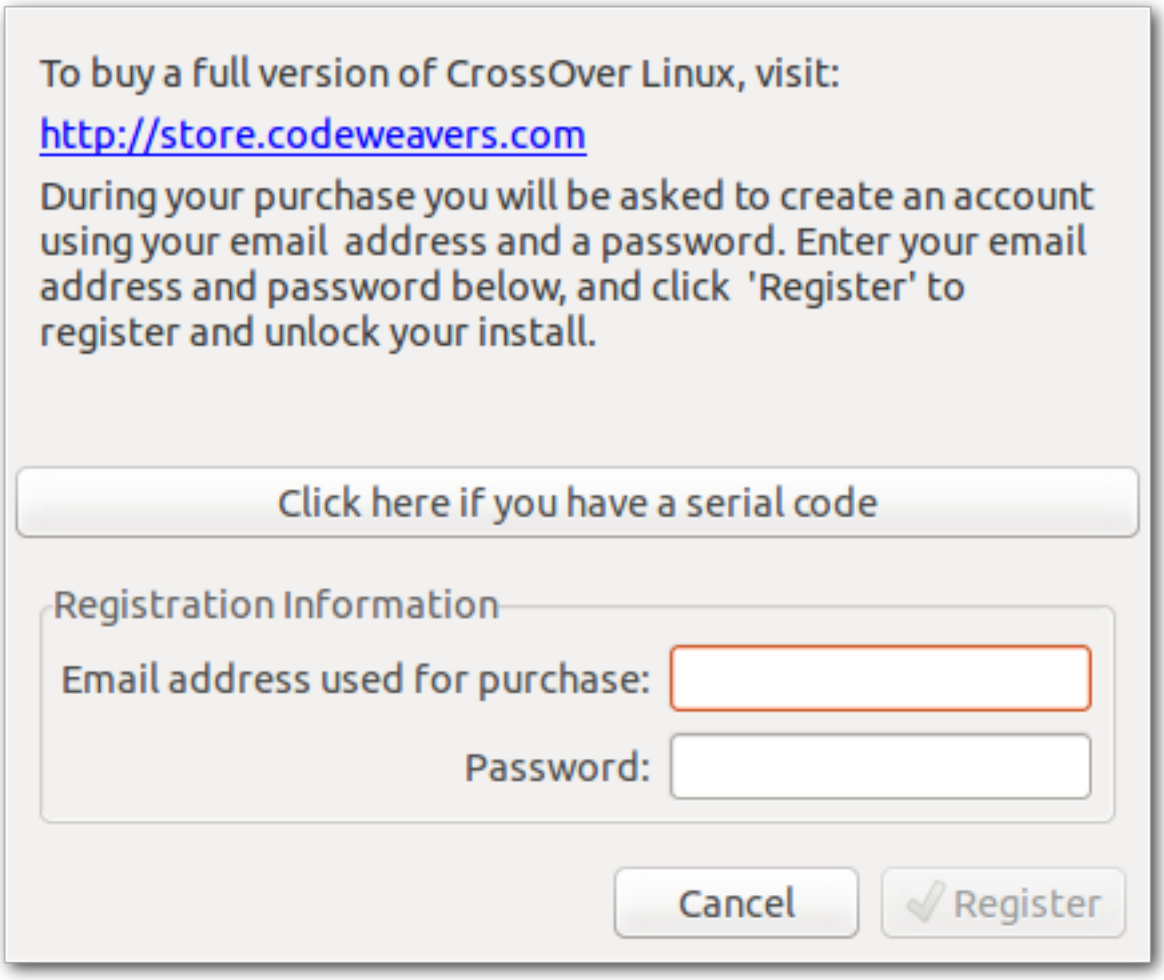
CrossOver will warn you periodically of the approaching expiration.

You may purchase CrossOver at any time from the CodeWeavers store. Doing so will allow you to permanently activate CrossOver so it will not expire.

When you visit the CodeWeavers website to purchase CrossOver, you will be asked for an email address and you will get to choose a password. You must remember the email address and password you enter into the website when you purchase CrossOver. You will use this same email address and password to register CrossOver.

You can then register CrossOver at any time from the Help → Register CrossOver... menu, as pictured below (note: you must be connected to the Internet in order to register):

When you choose to register CrossOver, you will see the following dialog:



When you see the dialog pictured above, remember the email address and password you entered into the CodeWeavers website when you purchased CrossOver. Enter that same email address and password into the registration dialog and click the Register button. Your version of CrossOver will then be registered.

When you have registered CrossOver, all existing bottles and applications are unlocked.

Tip

If needed, you can also run the registration tool from the command-line, like this:

```
$ ~/cxoffice/bin/cxregister
```

Enter your email address and password into the registration tool, and click Register.

CrossOver will connect to a CodeWeavers server, unlock your installation, and notify you of the success of the operation.

Chapter 5

Installing Windows Software

5.1 Using the CrossOver Software Installer

The CrossOver Software Installer is an assistant that will guide you through the process of installing Windows software. It can be launched from the Tools → Install Software... menu. It can also be run from the command-line as follows:

```
$ ~/cxoffice/bin/cxinstaller
```

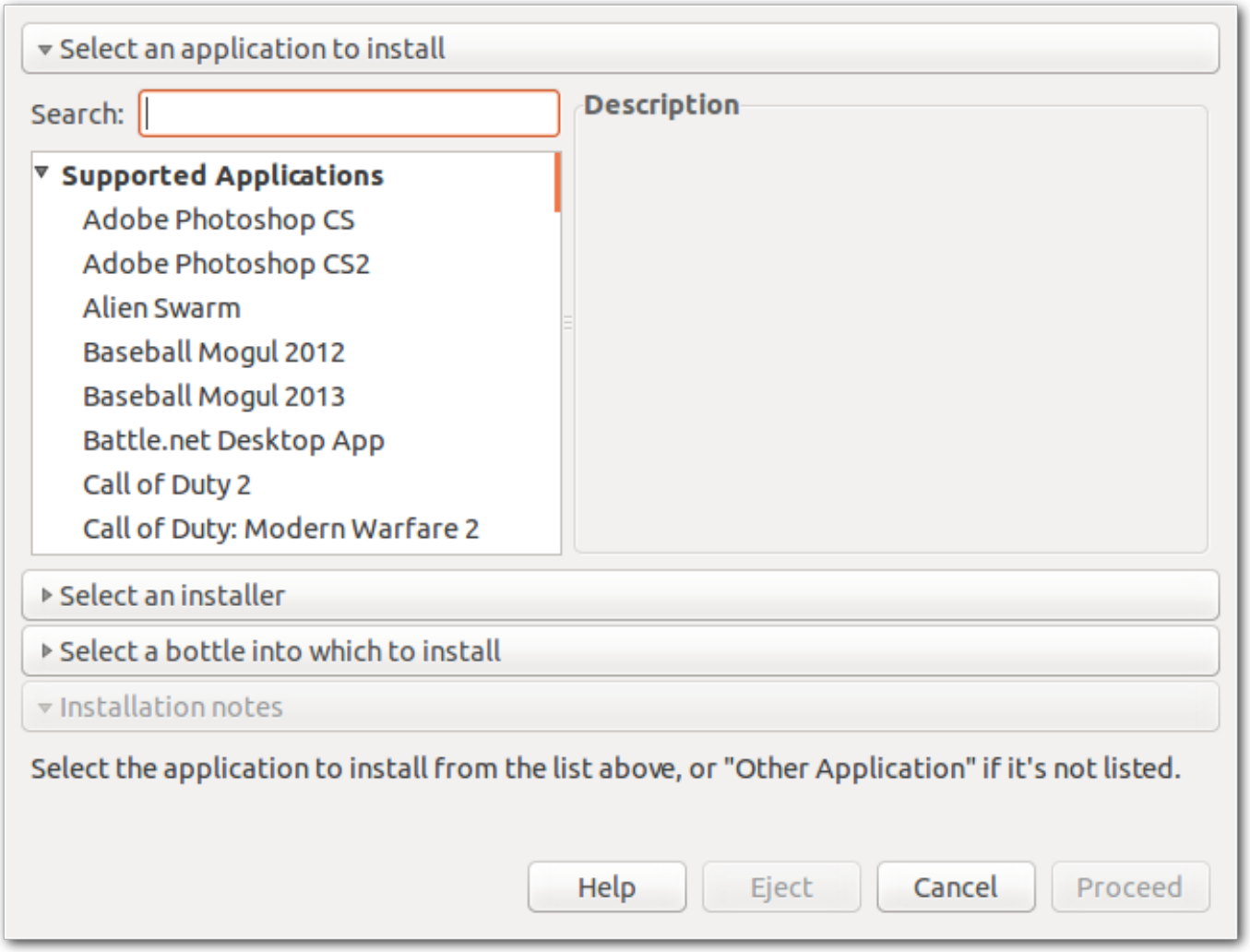
Tip
The CrossOver Software Installer contains extensive knowledge about the specific conditions and parameters that make applications install and run well. When software is installed without using it (for instance by running Wine directly) or when it is misinformed about what's being installed (for example if one application is installed when a different one has been selected from the selection panel), suboptimal settings may be used and the subsequent application behavior may be less reliable.

5.1.1 Choosing what to install

The first panel displays a list of applications that CrossOver knows how to install. To install a program, select its name from the list and proceed to the next panel.

In many cases (especially for downloadable software) the assistant will immediately display the Install button. This means that it was able to pick good default values for all the other settings and is ready to begin. You may browse settings in the other panels by clicking on the title bars of each section, or proceed with a default installation by clicking Install.

If the assistant requires more information before installing, it will display a Proceed button. Clicking on it will result in a prompt for the next bit of necessary information. At any point you may adjust your selections by selecting any section of the assistant.



Supported Applications CrossOver has been tested and tuned to optimize the behavior of this select list of applications. CodeWeavers tech support will also provide assistance when difficulties arise with these programs.

Community Supported Applications The users of the CodeWeavers CrossOver Compatibility Center have contributed installation strategies for a long list of applications. These programs are not officially supported by CodeWeavers, but help may be available in the Compatibility Center forums.

Other Application If you wish to install software that is not otherwise listed, select the Other Applicationoption. Keep in mind, though, that unsupported software may work poorly or not at all. In addition, installing it in an existing bottle may prevent the other Windows applications in that bottle from working. So it is generally recommended that unsupported applications be installed in a new bottle for testing purposes.

Before installing an unlisted application, you may benefit from looking it up in the CodeWeavers CrossOver Compatibility Center where you may find tips and tricks on getting it to work.

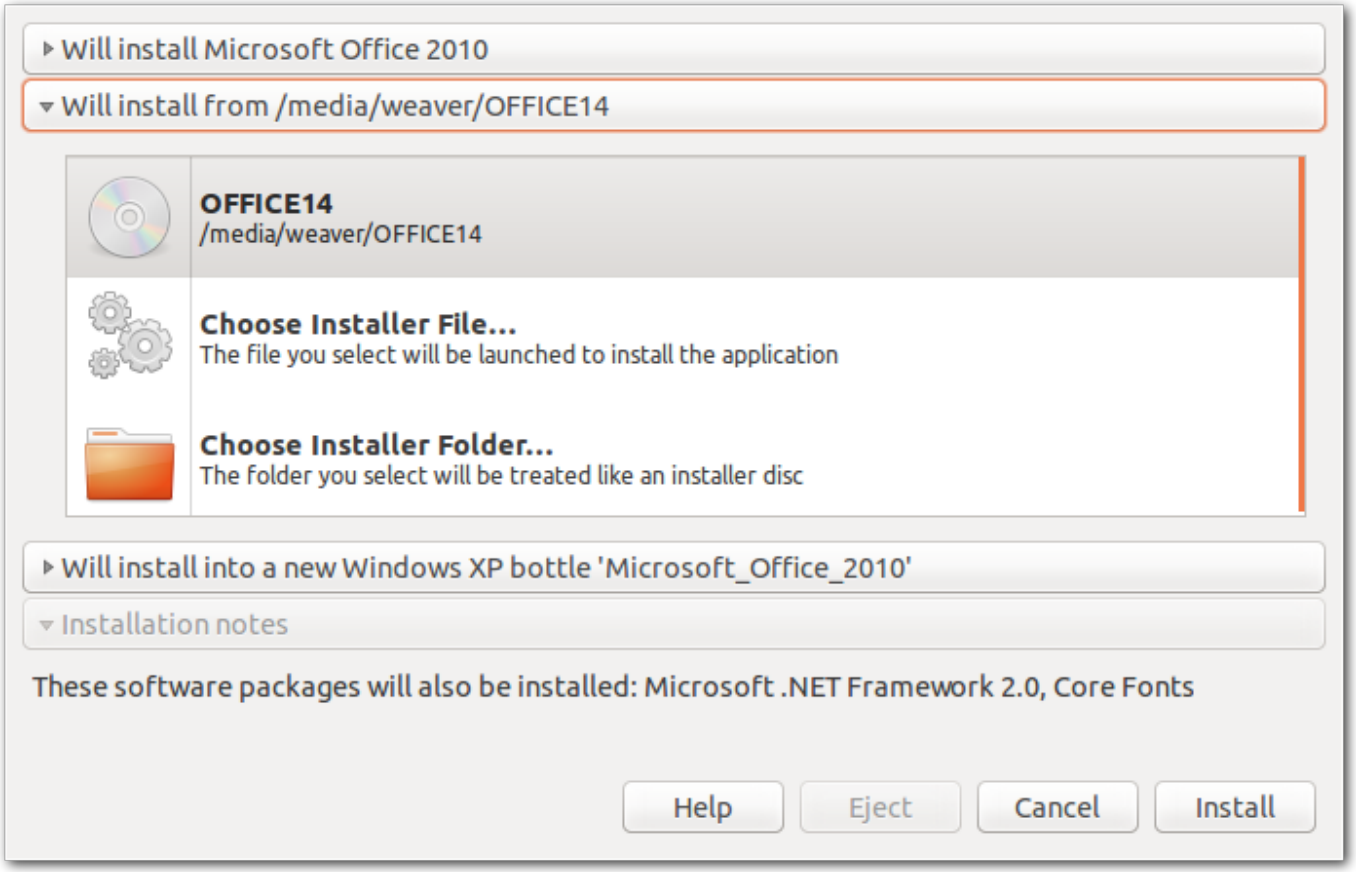
Service Packs and Upgrades Many applications require downloadable service packs to be applied for best performance. The advisability of each package is indicated by the medal rating.

Runtime Support Components In most cases you will not want to install the software in this section manually. Many of these packages are requirements for the successful installation of supported applications, and will be automatically installed as part of the predetermined installation process.

Important
If a specific bottle has not been previously selected, the assistant will install the software into a new bottle whenever possible. If it detects conflicts between the selected package and the default bottle, the bottle panel will guide your installation into a more appropriate bottle.

5.1.2 Selecting an installation source

When installing software from a CD or DVD, the assistant will allow you to pick a volume, file or directory to use for the installation.



Volume Selection At this point, you should be able to select any CD, DVD, or mounted ISO or disk image. When a volume is specified, the assistant will search that drive for an installer or autorun file. This option is the default, and will work for most cases where the application comes on a disk.

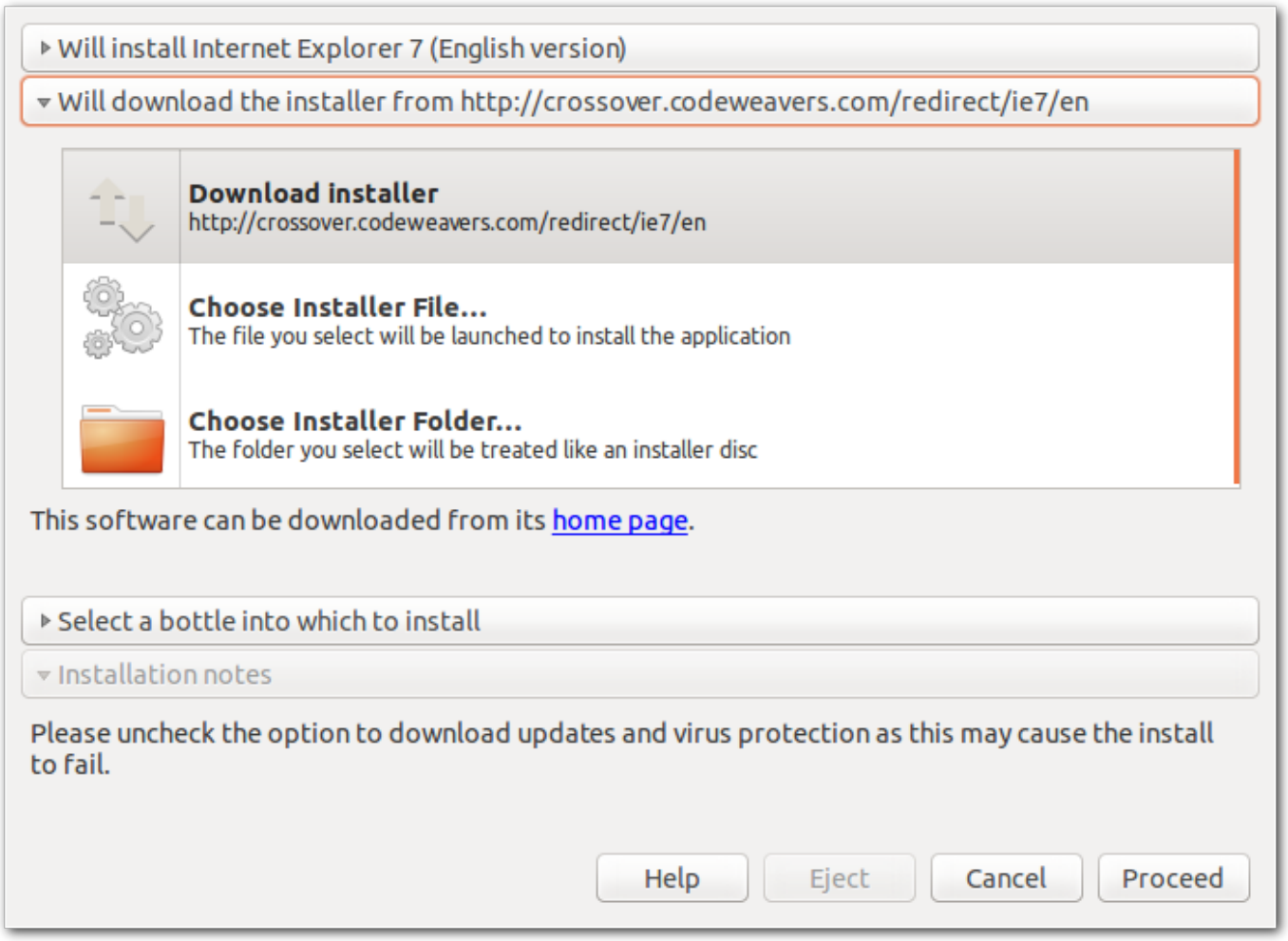
Choose Installer File... If you want to install software off your hard drive, or off a CD that contains several installers, select this option and specify the desired installer. In some cases, CrossOver will be unable to locate a default installer file when you select one of the CD options. In those cases, you will need to locate the installer file on the disk yourself, using this option.

Choose Installer Folder... This option is useful if the content of a CD has been copied into a folder on your local hard drive. It may also be necessary if you are installing from a disk that contains multiple installers in subdirectories.

The Choose Installer Folder... option will treat the selected folder as if it was an installer disk. So if it does not contain an obvious installer or autorun file the installation will likely fail.

5.1.3 Downloading an installer

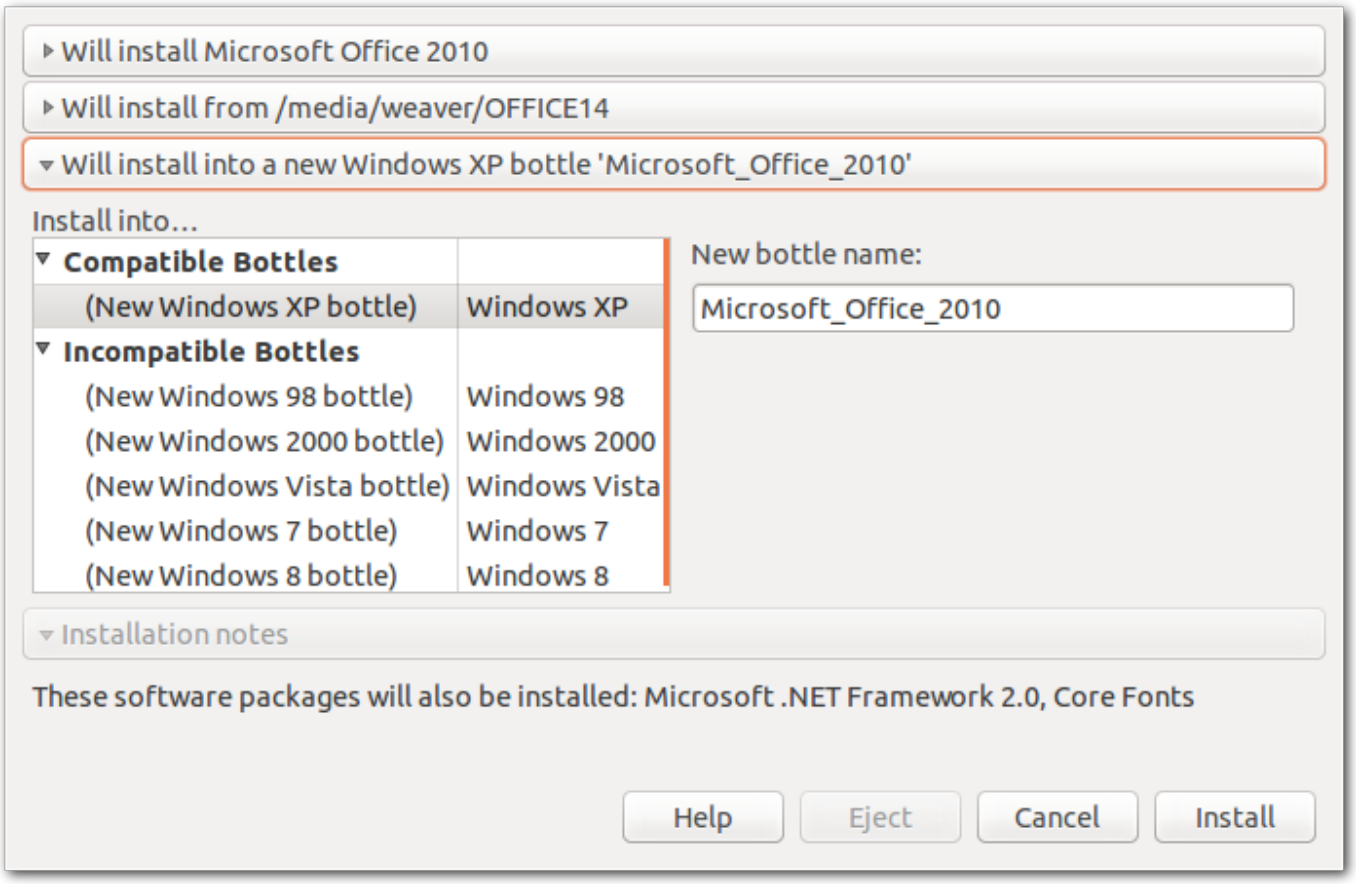
Many applications can be downloaded from the Internet. For most of those, the assistant can automatically download the installers for you. Make sure that you have an active connection to the Internet if using this facility.



The assistant will cache downloaded installers. So if you install the same component frequently it should only require a single download. And if you have an installer file already located on your hard drive you can always select it via the Choose Installer File... option.

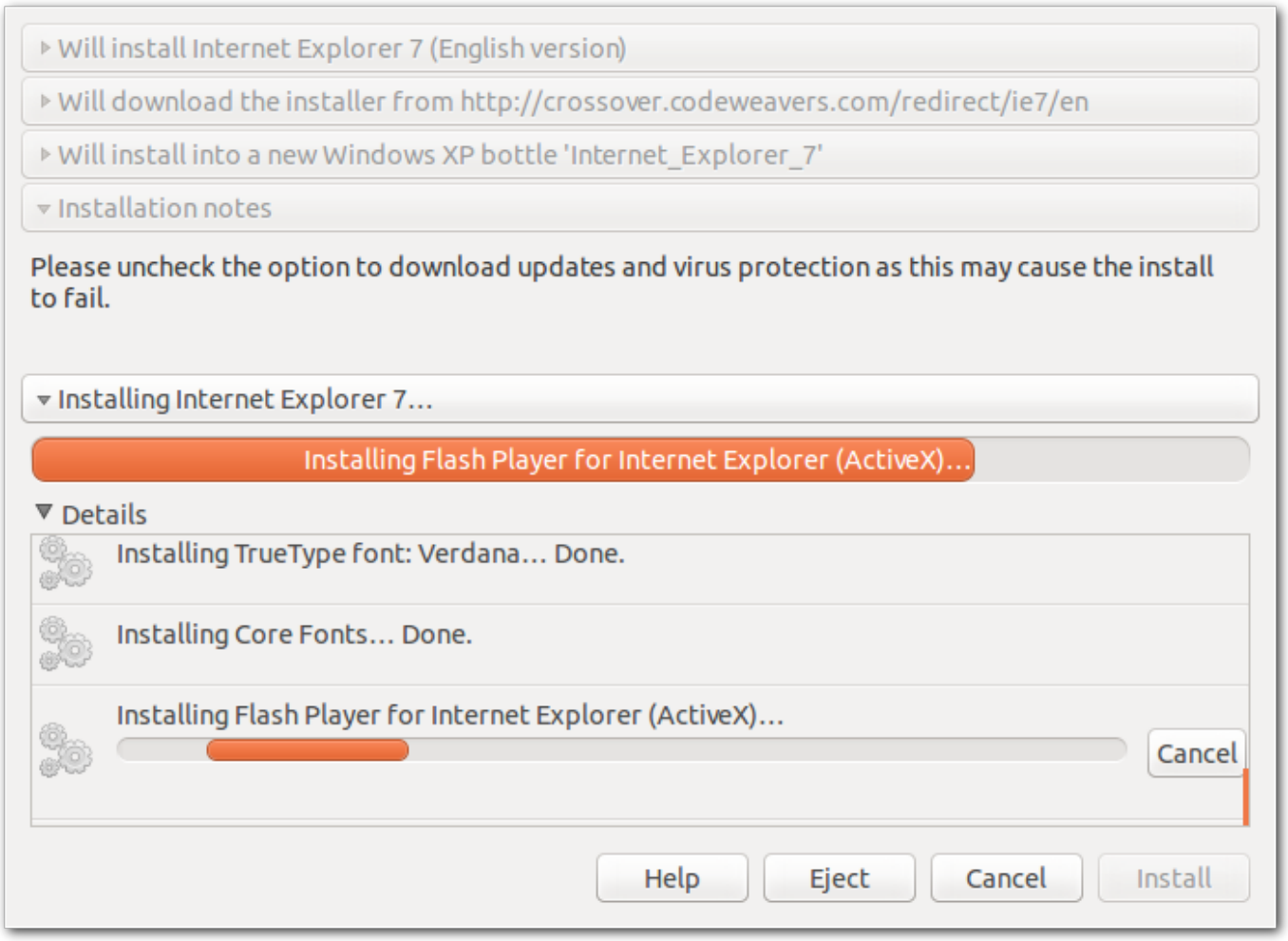
5.1.4 Selecting a bottle for installation

Important
In most cases, CrossOver will install the software into a new bottle and you will have no need to visit this panel.
The exception to this rule is when installing a service pack or upgrade, in which case you may need to manually select the bottle that contains the software to upgrade.



5.1.5 Completing the installation

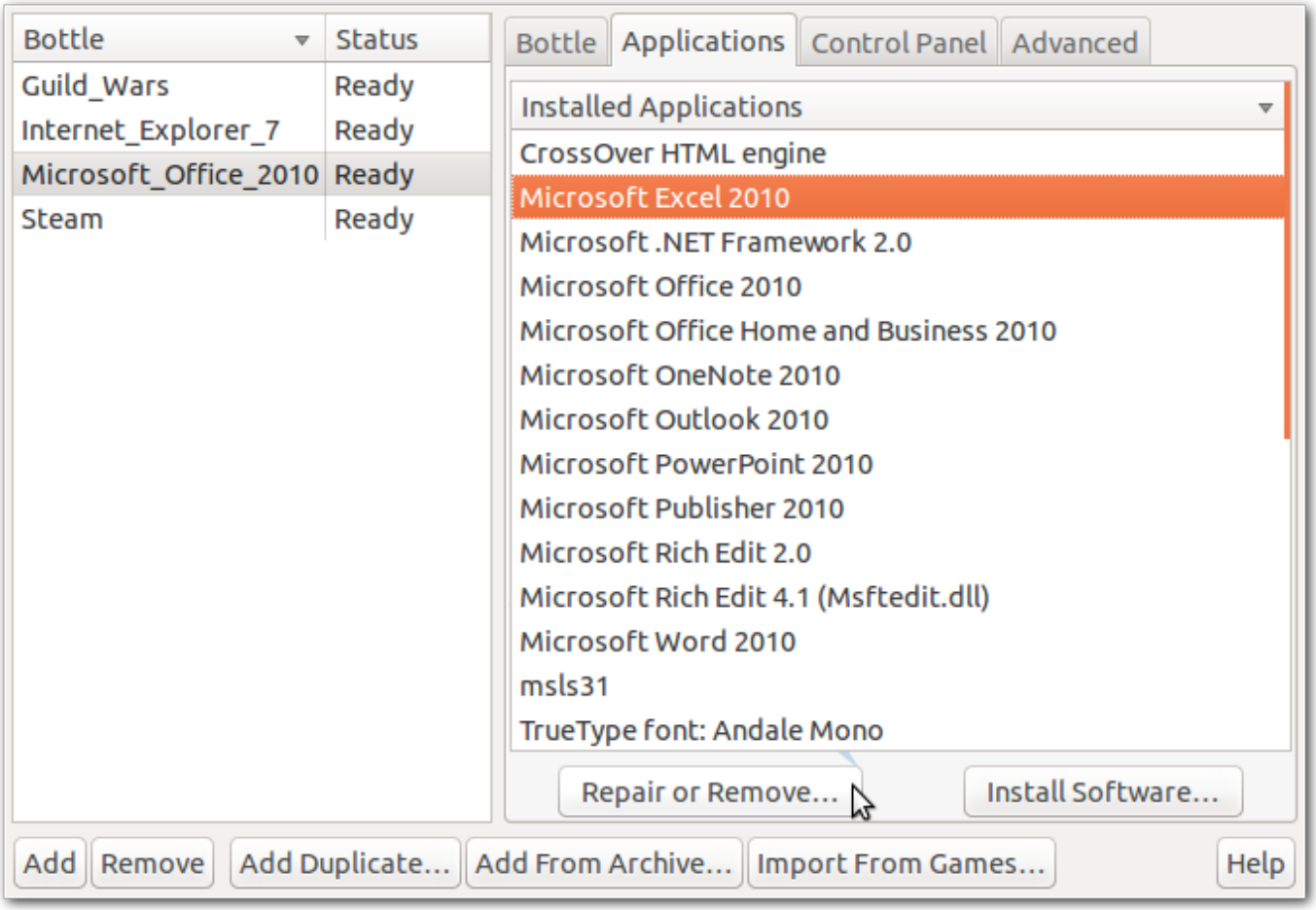
Once you click Install, your interaction with the CrossOver Software Installer is mostly finished. Various Windows installers may prompt you for interaction, while the assistant keeps a running tab of the completed steps.



The Cancel buttons should be used sparingly. Canceling a step may result in an unrecoverable problem that will require you to discard the target bottle.

5.2 Removing Applications

To remove an application, go to the Bottle Manager Applications tab and select it in the installed software list. Then click on the Repair or Remove... button, as pictured below. This will start the application's repair / uninstallation facility.



If the application you want to remove is not in the list, or if the Repair or Remove… button is disabled, then it means it did not register an uninstallation procedure. It may propose an uninstallation option if you insert its CD and start the installation procedure again. Refer to your software documentation for other possible uninstallation options.

Tip
When removing an application, be sure to completely uninstall it, including any system extensions that were associated with it. Otherwise, the Bottle Manager may not recognize that it has been uninstalled and you may have trouble reinstalling it.

Chapter 6

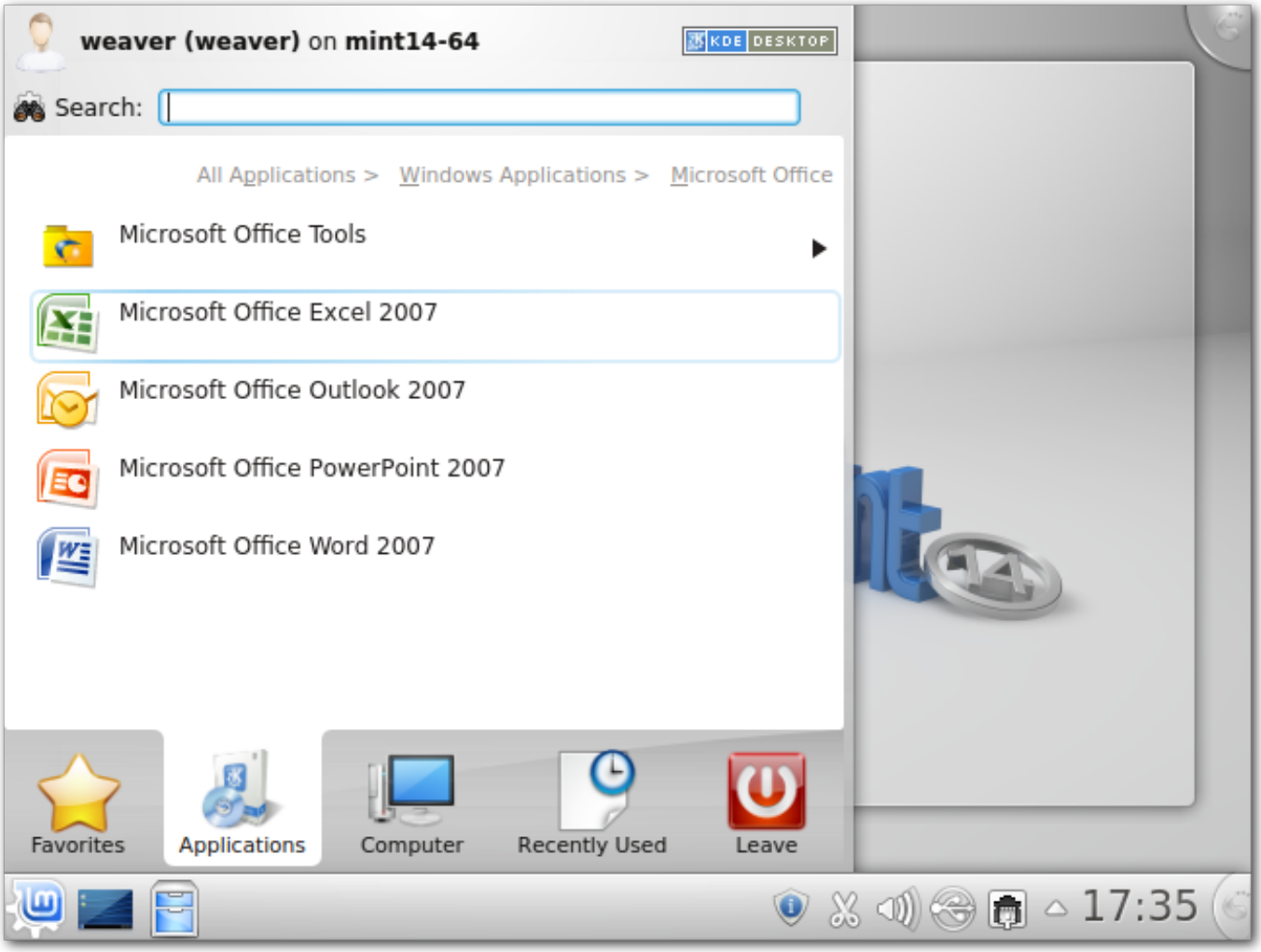
Using CrossOver Linux

6.1 Running Windows applications

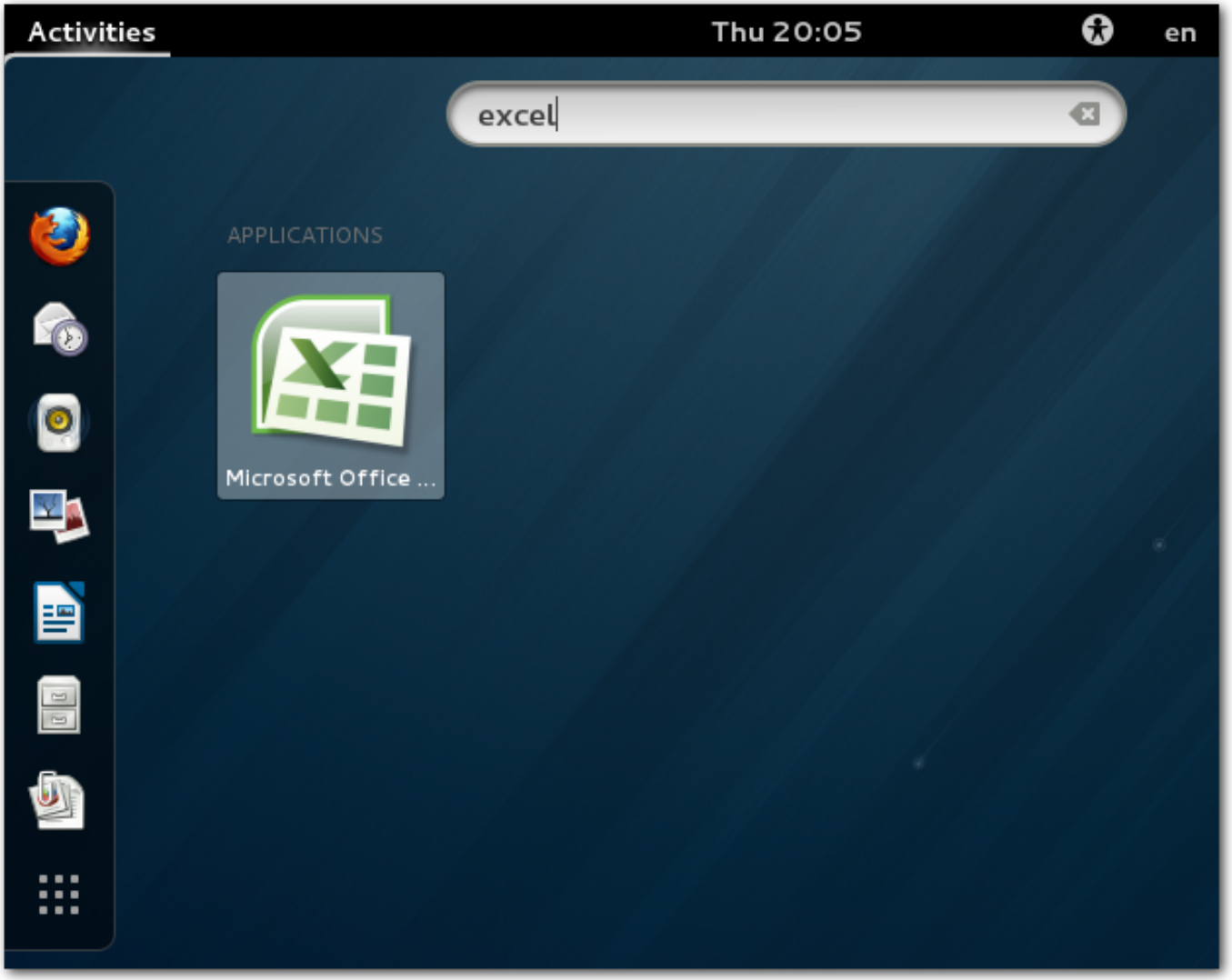
6.1.1 Running Windows Applications via desktop integration

CrossOver integrates your Windows applications with your native desktop environment. Of course, exactly how this integration works depends on what environment you use.

In desktop environments with a hierarchical menu system, CrossOver will create shortcuts to your Windows applications in a menu called Windows Applications.



In environments like Unity or GNOME 3, CrossOver will create shortcuts which you can search for using your desktop environment's search function.



If no menu entries are created, you will still have the option of running applications from CrossOver's main menu, or from the command line. You may also be able create menu entries for these command lines yourself using the menu-editing tools provided by your system.

6.1.2 Running Windows Applications from CrossOver

You can launch your Windows applications in CrossOver's main menu.

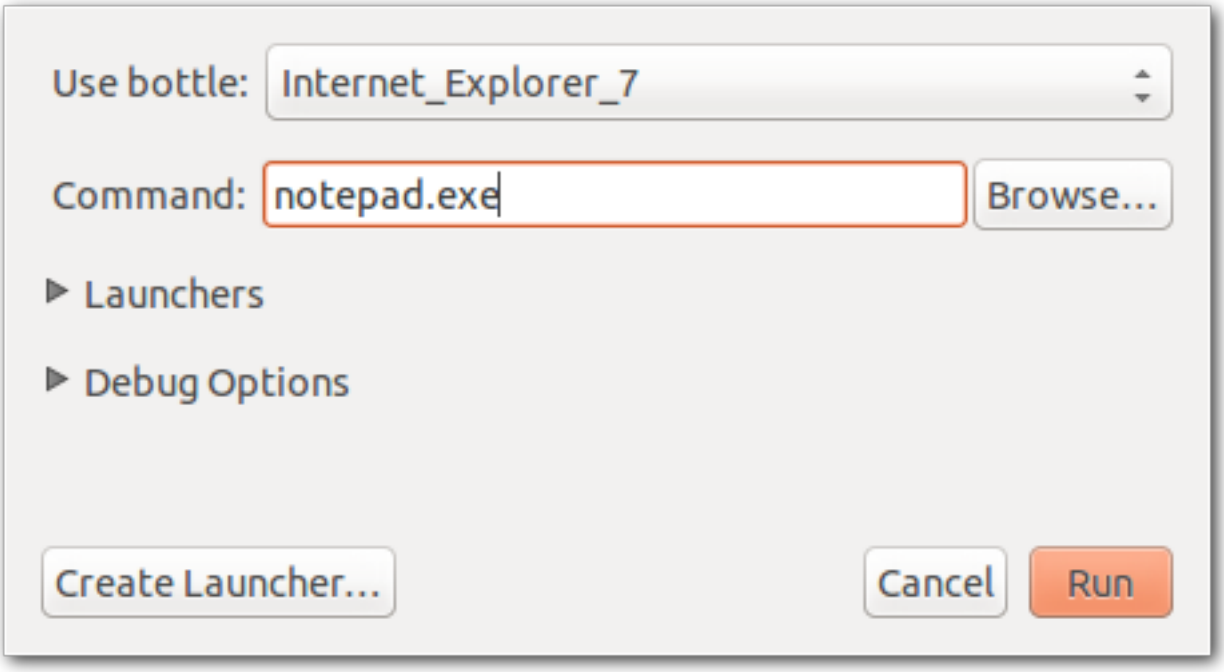
To launch a Windows application installed via CrossOver, simply click on its button in the main menu.

You can customize CrossOver's main menu to control which applications appear there. To remove an entry from the main menu, simply right-click on that entry and select the option to remove it.

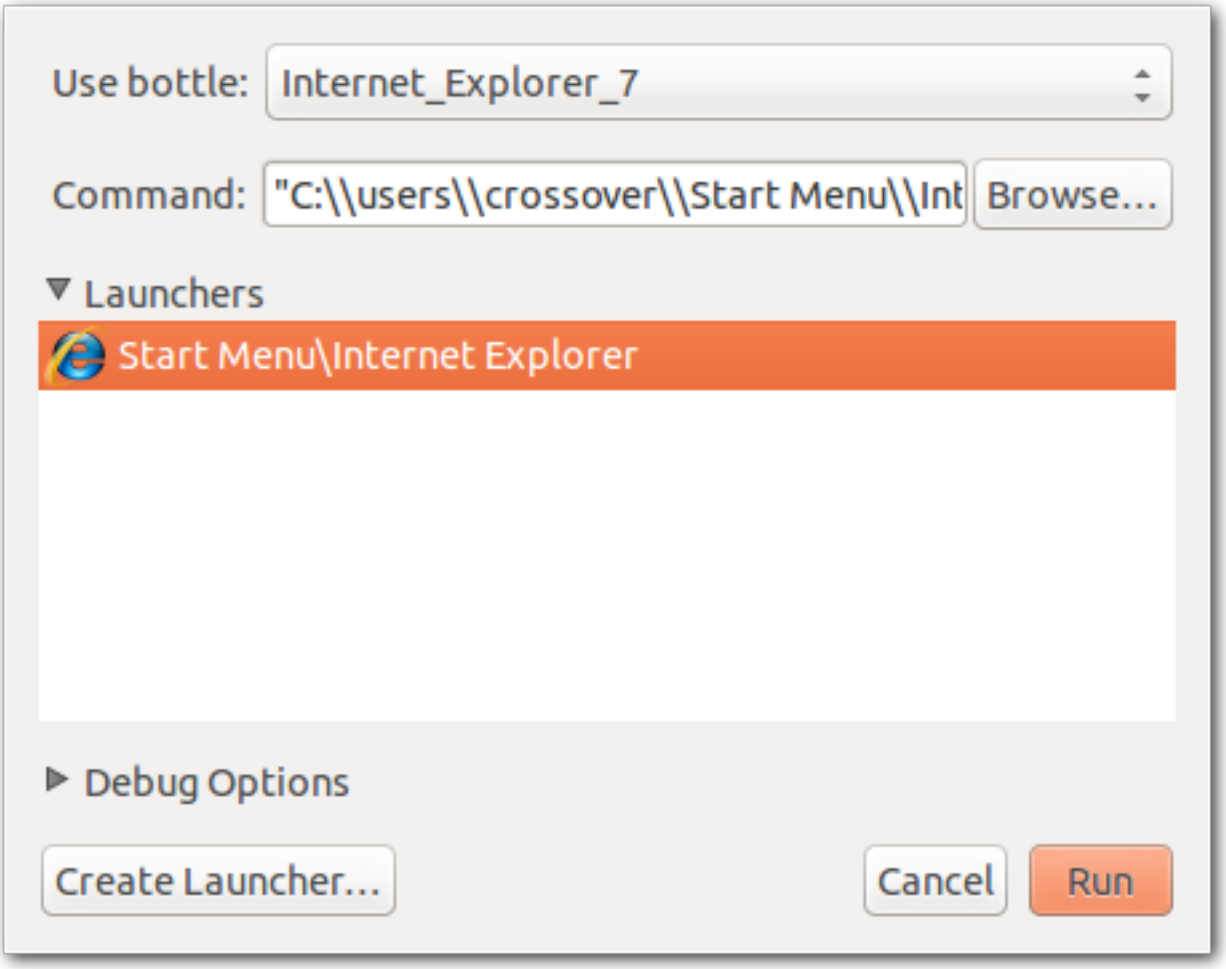
Removing an entry from the main menu does not delete it from your disk, nor does it impact desktop integration.

If you remove an entry from the main menu and later want to put it back, you can do so by clicking the See All Windows Applications button.

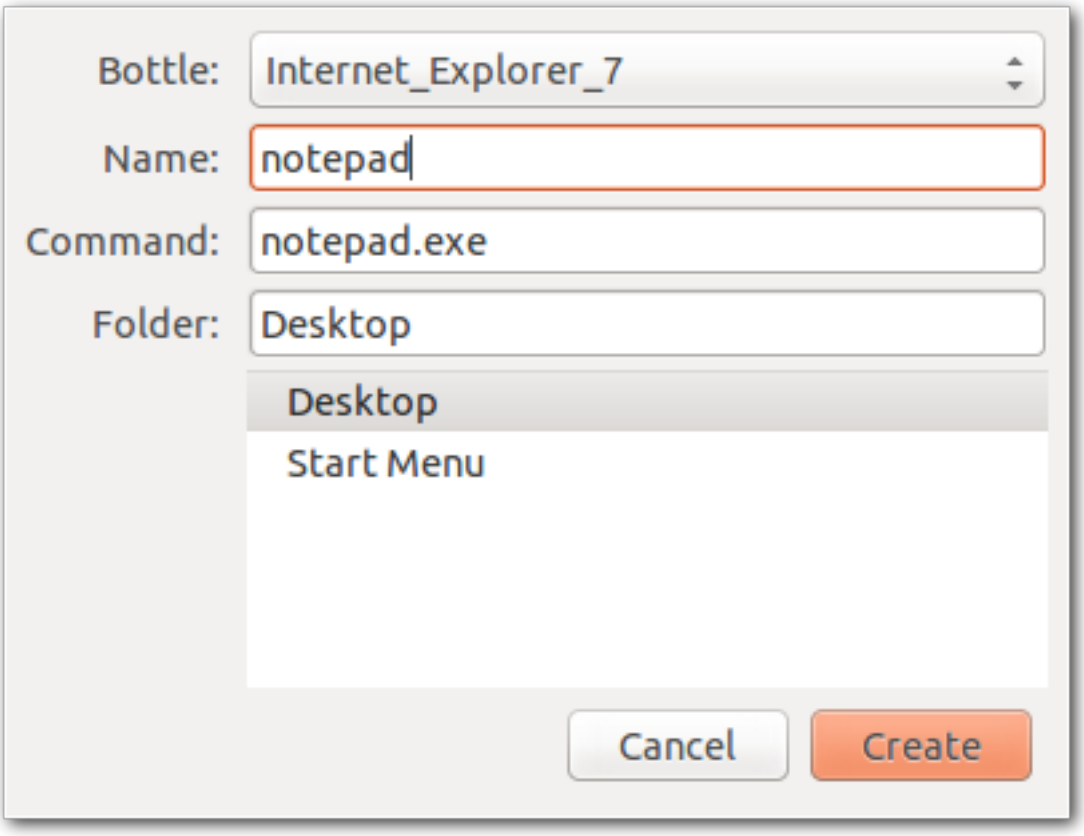
6.1.3 Running Windows applications with the Run Command dialog



You can also use this dialog to run a bottle's existing Windows shortcut by picking it in the Launchers tree.



If you need to run the same command regularly you can create a shortcut for it by clicking on the Create Launcher… button. You will then get to choose the name of the shortcut to add to your desktop's environment, as well as its location in the menu hierarchy.



This tool is also available from the bottle manager and from the command line:

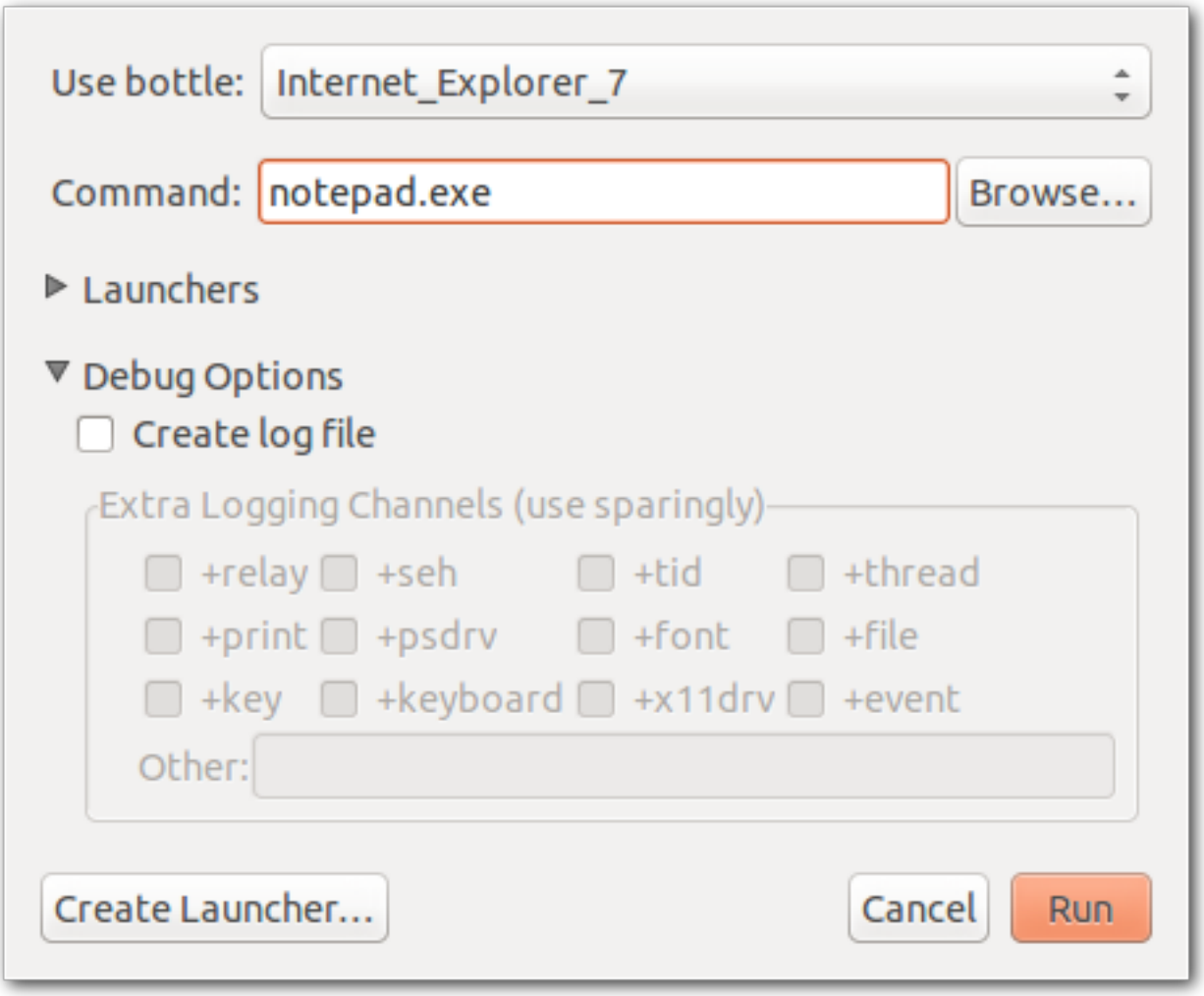
```
$ ~/cxoffice/bin/cxrun
```

or, for multi-user installs:

```
$ /opt/cxoffice/bin/cxrun
```

Important
This feature is especially important when there are multiple bottles present. When run from the command-line Wine generally operates on the default bottle. Cxrun provides a simple way to specify an alternative bottle.

This dialog provides several logging and debugging functions as well. These options may be useful if you talk to CodeWeavers tech support or if you are trying to make an unsupported application behave. To display these options, click on the Debug Options reveal control.



Create log file If this option is turned on, CrossOver will prompt you for the name and location of a log file before the command is run. This log file will contain a variety of debugging information about the run.

Turning on specific logging channels will determine what information is written to the log file. Many of these channels include a large volume of information, so generally they should be used singly or in pairs.

6.1.4 Running Windows applications from the command line

6.1.4.1 Using command line shortcuts

For some Windows applications CrossOver can create simple command-line shortcuts to start the application. If CrossOver is installed in your account you will find them in `~/cxoffice/bin`. So for instance if you installed Microsoft Word you would be able to start it by running:

```
$ ~/cxoffice/bin/winword
```

For private bottles you will also find these shortcuts in the directories specified in the PrivateShortcutDirs configuration setting, which typically includes `$HOME/bin`. For published bottles check out the ManagedShortcutDirs configuration setting. It will usually include `/usr/bin`.

If the Windows application allows it, you will also be able to open documents using these shortcuts by specifying the document path as an argument. For instance:

```
$ ~/cxoffice/bin/winword letter.doc
```

For a complete list of the shortcuts available, type the command

```
$ grep -l desktopdata/cxmenu ~/cxoffice/bin/*
```

Tip
If you install the same application in more than one bottle, the resulting script will point to the most recent installation. So if you install Word 2003 in a bottle and then Word 2007 in another, the `winword` shortcut will start Word 2007.

6.1.4.2 Using "wine --cx-app"

You can also start Windows applications by using the **wine** script with the `--cx-app` option and specifying the name of the application's executable. So, for instance, Microsoft Word's executable is called `winword.exe` so you could start it by running:

```
$ /opt/cxoffice/bin/wine --cx-app winword.exe
```

Or, if CrossOver is installed for a single user:

```
$ ~/cxoffice/bin/wine --cx-app winword.exe
```

Similarly, to open a document in Word you would run:

```
$ ~/cxoffice/bin/wine --cx-app winword.exe letter.doc
```

For a complete list of applications that will work with the `--cx-app` option, try this:

```
$ find "~/.cxoffice" -iname "*.exe"
```

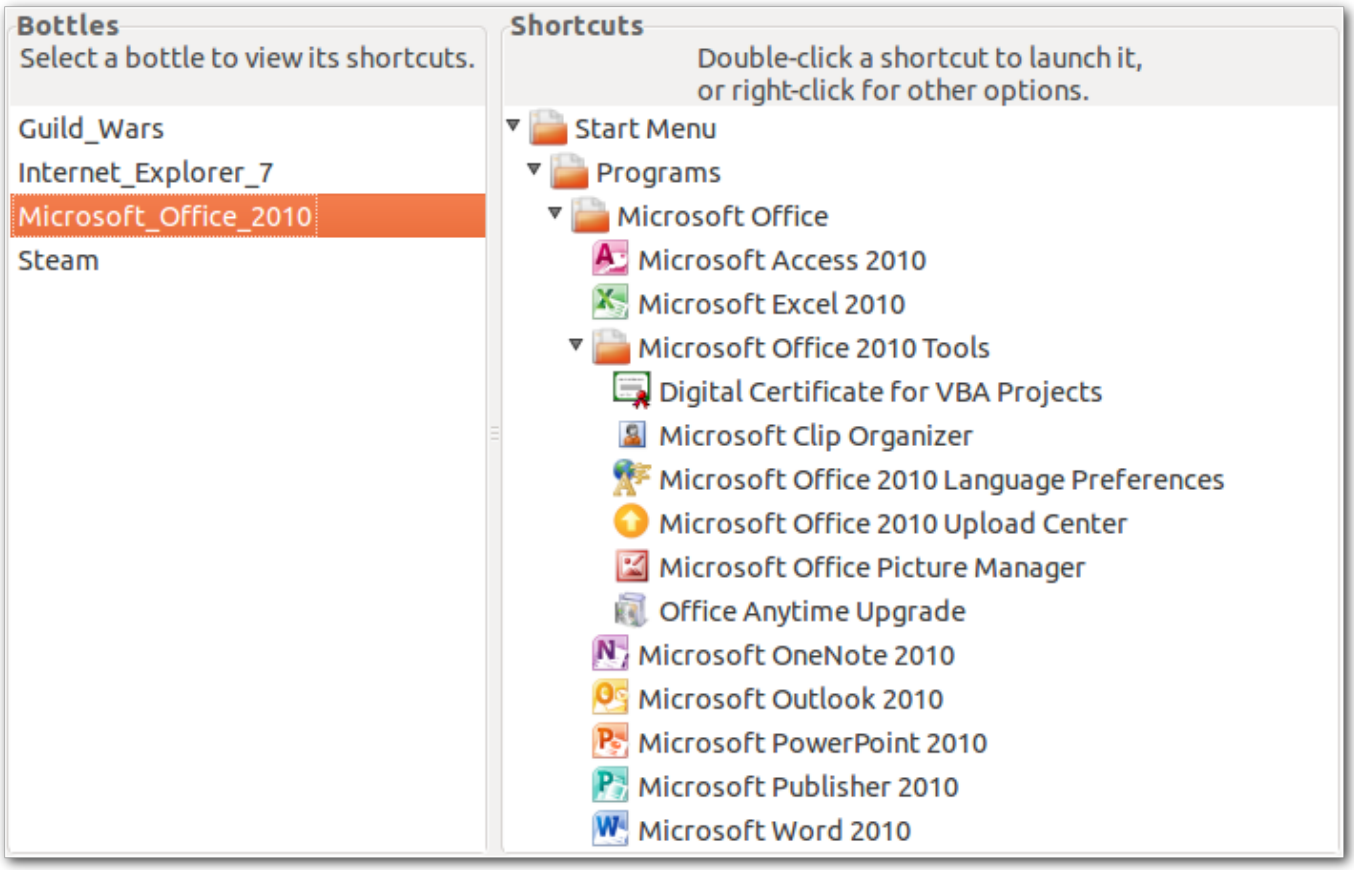
Tip
There will be many .exe files on your system that are either system tools or subcomponents of other applications. Running some of these programs could cause unpredictable or destructive things to happen. It's never a good idea to run a Windows applications unless you have a good understanding of where it came from and what it does.

Important
Note that **wine** will search and run the command in the default bottle unless told otherwise. To run a Wine command in a different bottle, specify the bottle like this:

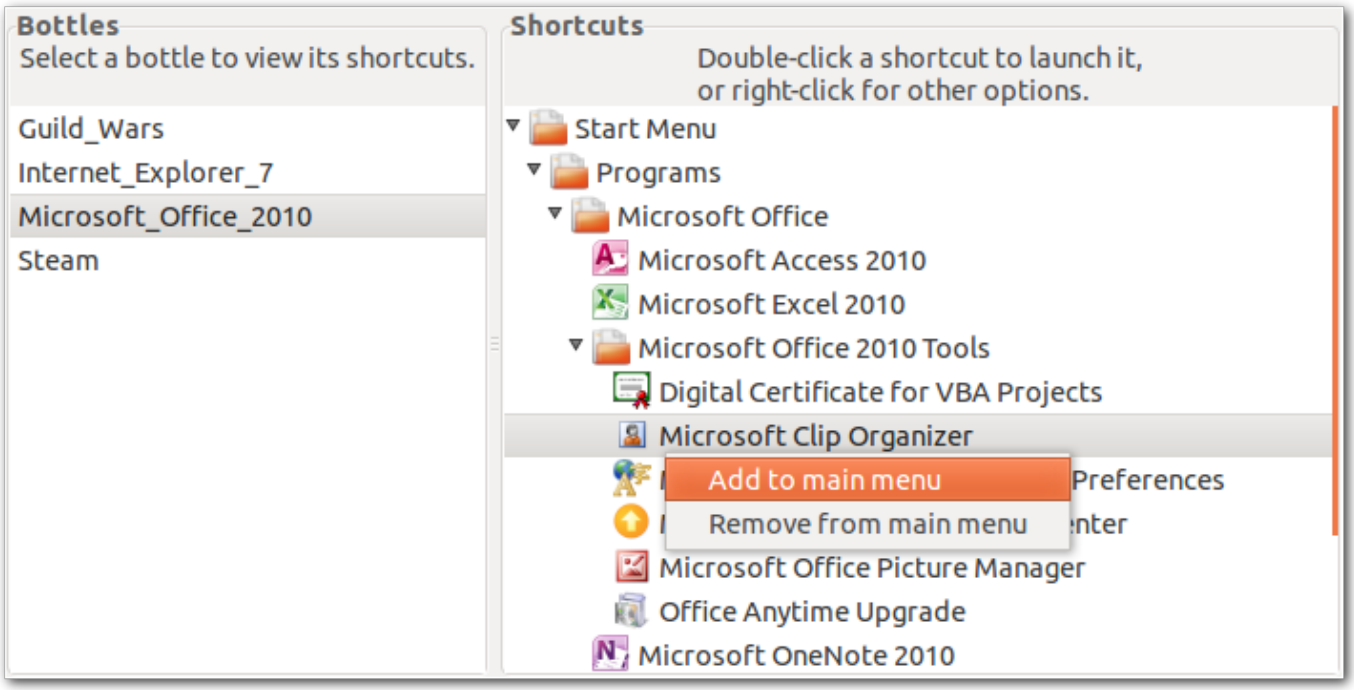
```
$ ~/cxoffice/bin/wine --bottle bottle-name --cx-app winword.exe
```

6.2 CrossOver's All Applications window

CrossOver's All Applications window allows you to view all of the shortcuts which your Windows applications have created. This includes all those that would have been created in the Windows "Start Menu" as well as those which would have been placed on the Windows "Desktop". Shortcuts for each bottle are listed separately, as shown below:

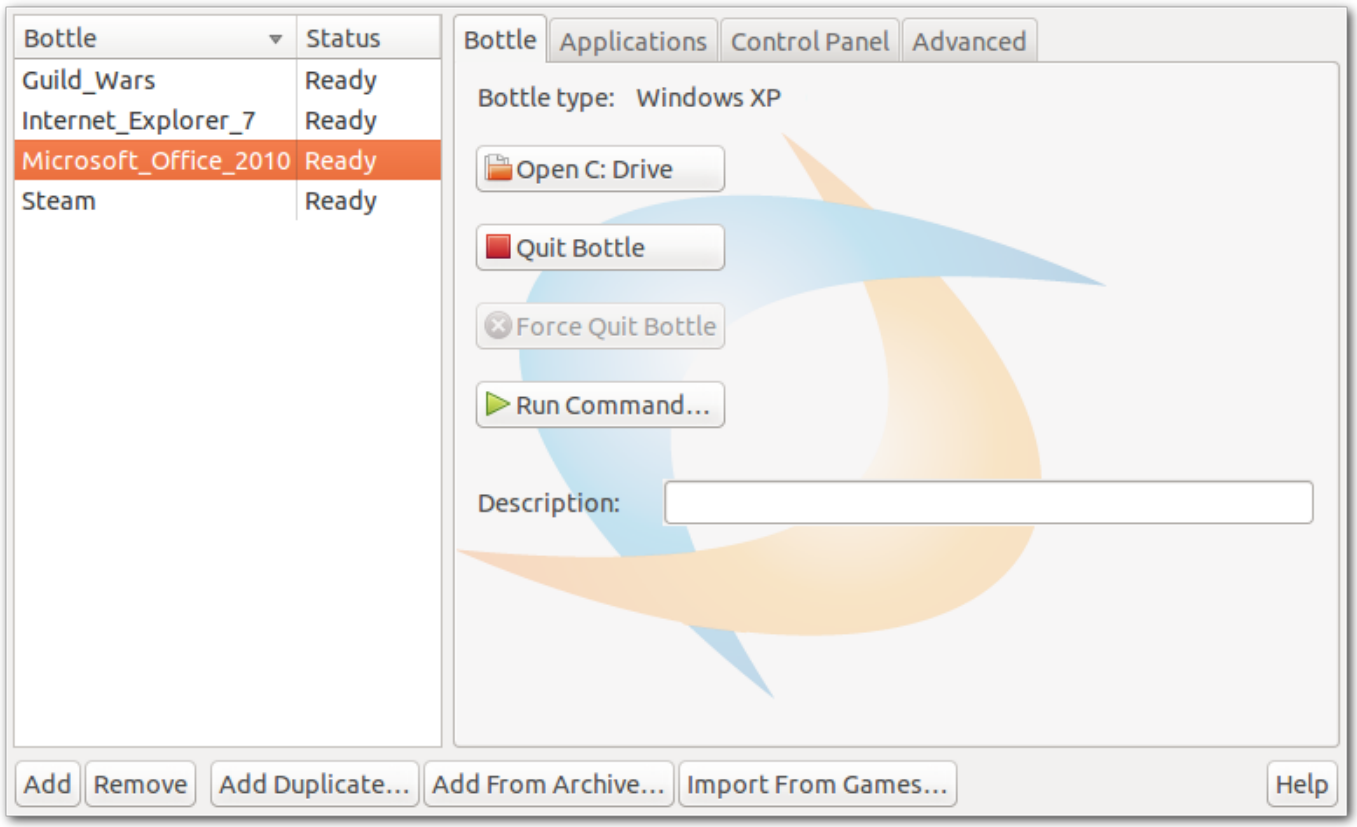


If you right-click on any shortcut in this window, a context menu will appear. From that context menu you can add the shortcut to CrossOver's main menu, or remove it.



6.3 Stopping misbehaving programs

There may be occasions when Windows applications become unstable or stop responding. You can terminate all of the applications running in a given bottle by clicking on the Quit Bottle button in the Bottle Manager.



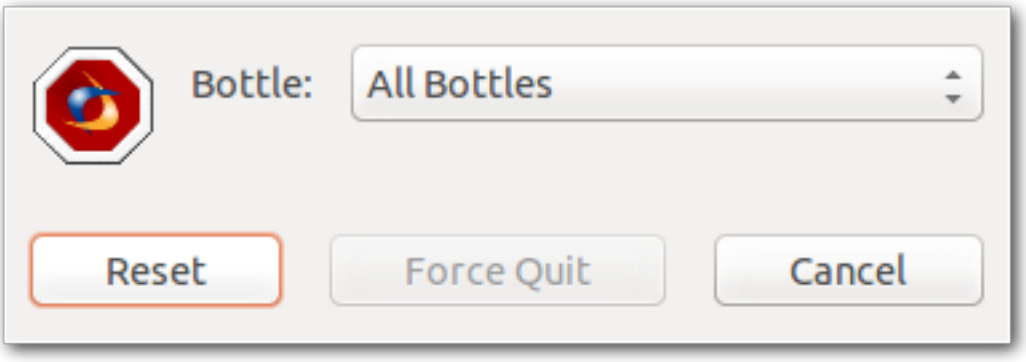
Tip
Forcing a bottle to quit will cause all that bottle's Windows applications to exit. Any unsaved changes to documents will be lost.

You can also stop misbehaving Windows applications from the command line:

```
$ ~/cxoffice/bin/cxreset
```

or, for multi-user installs:

```
$ /opt/cxoffice/bin/cxreset
```



This will let you choose whether to stop the Windows applications of a specific bottle, or of all of them.

Chapter 7

Using the Bottle Manager

The Bottle Manager is the main tool for configuring CrossOver. You can access it from the Tools → Manage Bottles... menu. It can also be run from the command-line like this:

```
$ ~/cxoffice/bin/cxsetup
```

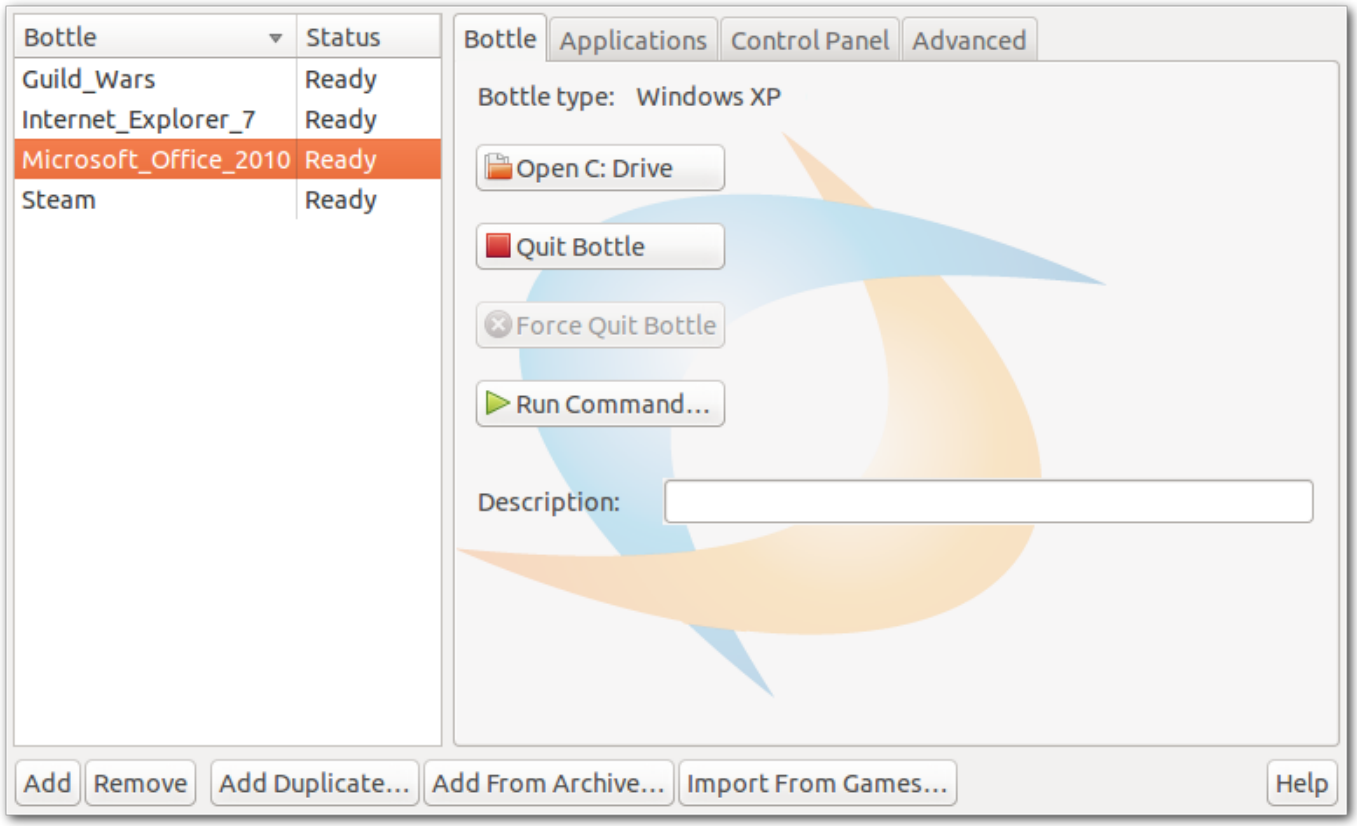
7.1 Managing Bottles

A bottle is a virtual Windows environment. Each bottle contains a unique C: drive and all its standard folders: Windows, Program Files, etc. A bottle also contains a complete Windows registry, a full set of most CrossOver settings, and one or more Windows applications.

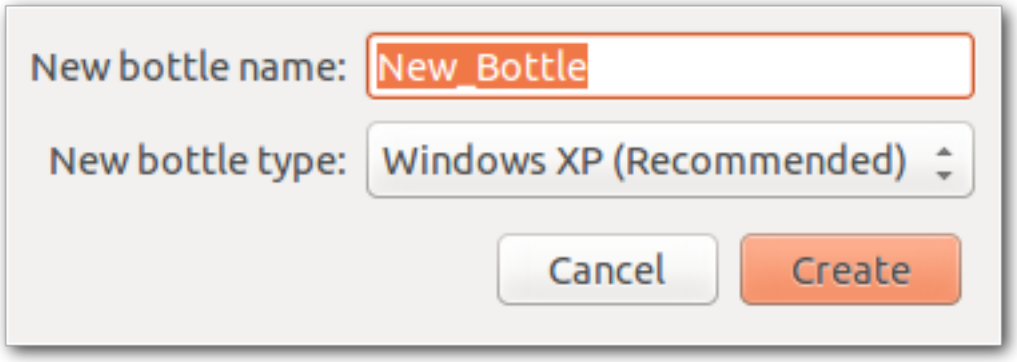
CrossOver Linux allows you to maintain multiple bottles in one CrossOver installation. This is like having several different Windows machines operating together on your computer. This is useful any time you want to install multiple applications yet prevent them from interacting with or damaging one another. For instance you could test out a new version of Microsoft Office in one bottle while keeping an older one for your day to day needs in another bottle.

Multiple bottles are also useful whenever a particular application requires special system settings that are otherwise undesirable. It is also possible to maintain bottles that emulate different Windows versions. For instance you could run an ancient application that runs best in a Windows 98 bottle side by side with more modern ones that require a Windows XP bottle.

The bottle manager allows you to create, delete, and modify the bottles in your CrossOver install. For the most part, the CrossOver Software Installer will take care of creating appropriate bottles, but this dialog provides more direct control.



Add This button creates a new bottle. You will have an opportunity to choose which Windows version the bottle emulates.



Remove This button deletes the selected bottle after asking for confirmation. Note that this removes all the Windows applications, settings, and documents that are inside this bottle.

Add From Archive... This button lets you pick a bottle archive created with the Make Archive... button, and restores it so it can be used again. This also lets you pick the name of the newly restored bottle.

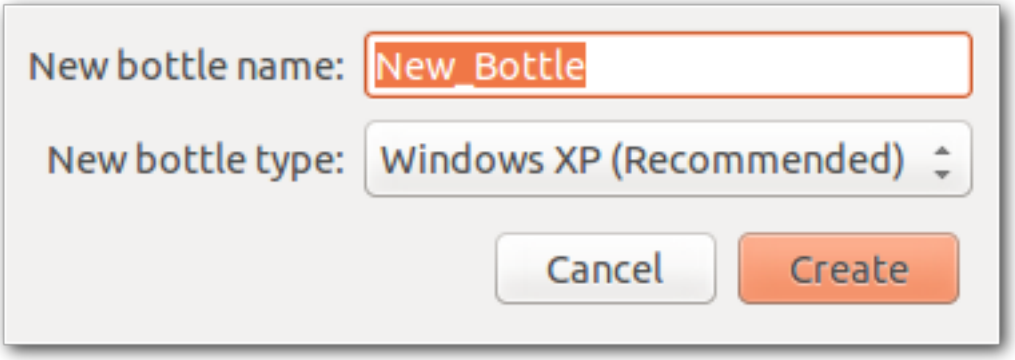
Add Duplicate... This button allows you to create a duplicate of an existing bottle. The duplicate will contain the same applications and settings as the original.

Open C: Drive This button opens a new file manager window displaying the contents of the current bottle's C: drive.

7.1.1 Bottle Windows versions

Most bottle settings can be adjusted once a bottle is created. The Windows version of a bottle, however, must be chosen when the bottle is created.

When creating a new bottle to install a known Windows application CrossOver's Software Installer automatically picks the most appropriate Windows version. But if you are creating a bottle by hand you must pick one yourself.



Most supported applications run best when emulating Windows XP. When installing unsupported applications, a good starting point is to pick whichever of Windows 98, Windows XP or Windows Vista was most current when the application was released. If the first try does not yield good results, your best guess is with one of the other versions in this list as the other versions usually yield the same results as one of these.

7.1.2 Bottle modes

CrossOver Linux supports bottles of two types: private and published. A given installation of CrossOver may make use of both bottle types at once.

Private bottles A private bottle is used by a single user, and is generally placed in that user's home account. Applications installed in a private bottle are unavailable for use by other users on a system. New bottles are always created in private mode.

Published bottles Published bottles are created within the CrossOver subdirectory, and can be used by all the users on a system. Applications in a published bottle can be run by any user, and each user is able to configure and customize existing applications.

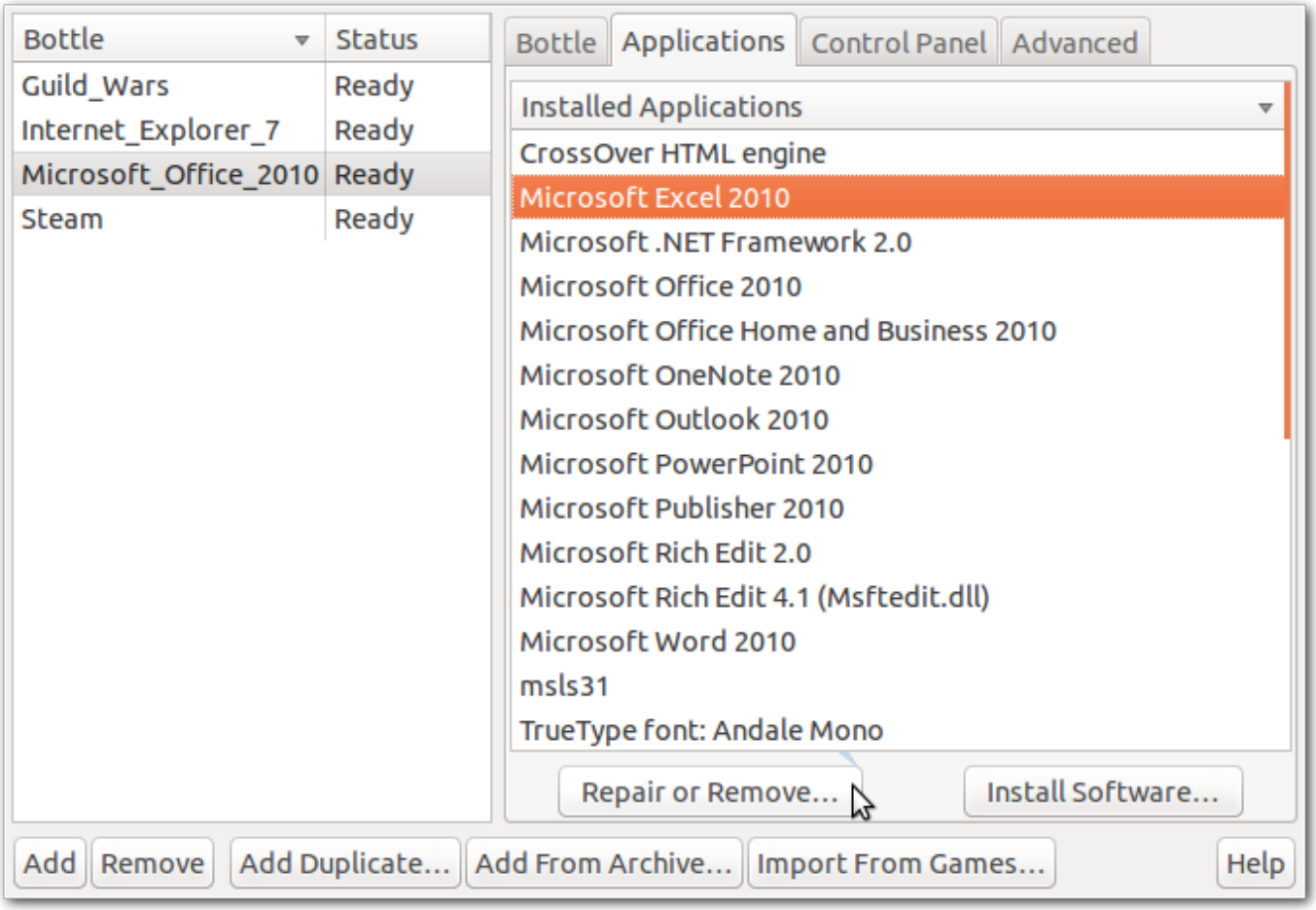
Published bottles save space and time by requiring only a single installation of each Windows application. However, some applications require specific CrossOver configuration options to work in that mode, and may perform erratically if those are missing.

When a user accesses a published bottle, a 'stub bottle' will be created in their home account. Stub bottles contain a user's custom alterations to the bottle, and contain symbolic links that refer to most large files and directories in the published bottle. A stub bottle has the same name as the published bottle to which it refers.

Tip
Published bottles are created using the Publish... button.

7.2 The Applications tab

The Applications tab shows the list of installed Windows applications and lets you install and uninstall them.



Installed Applications This lists all of the software that CrossOver has installed. Because many software packages contain or depend on other items, you will often see items in this list that you did not explicitly install.

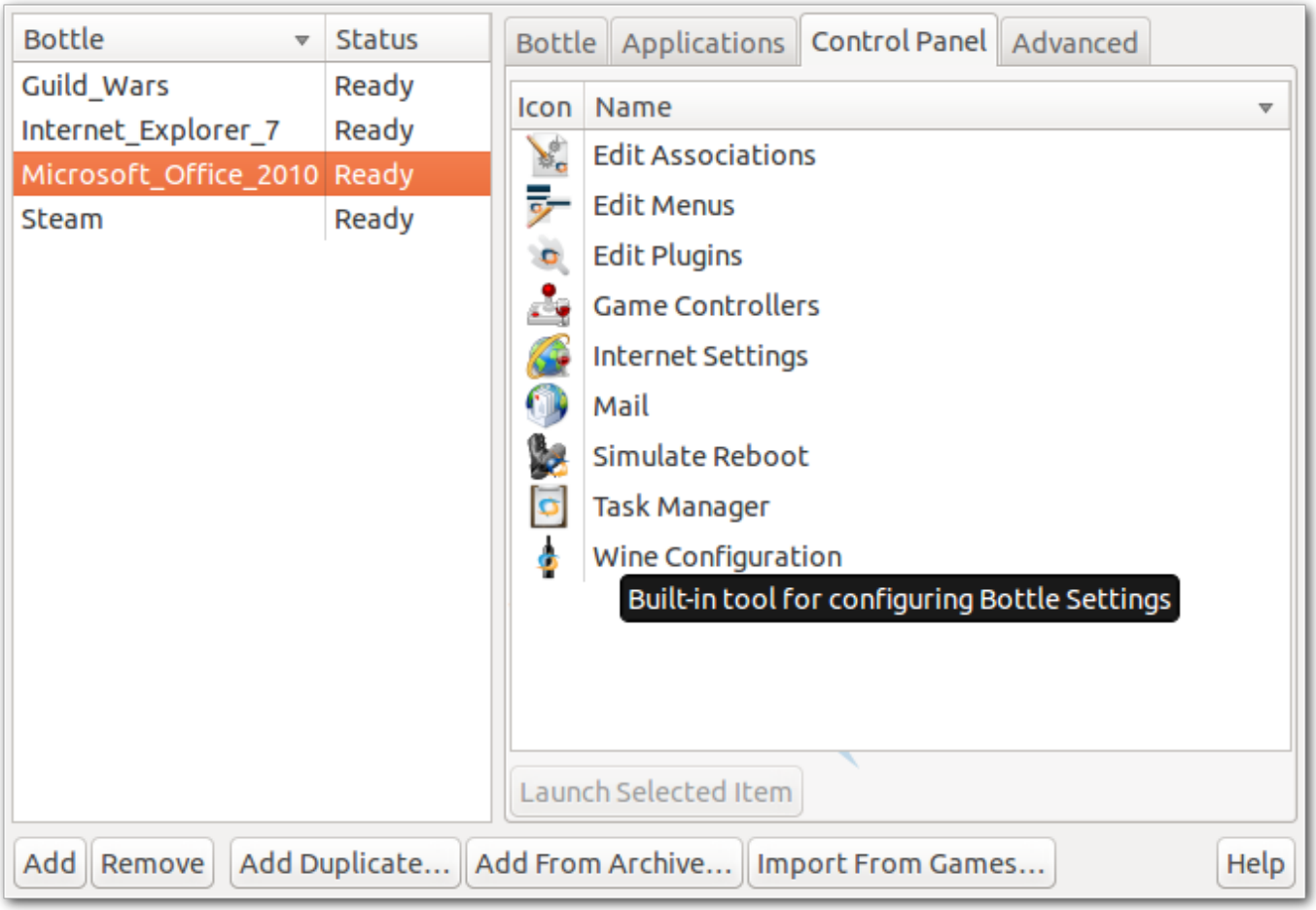
Install Software... To install new Windows applications in the selected bottle, click the Install Software... button. This will launch the CrossOver Software Installer which will guide you through the rest of the process.

Repair or Remove... Some Windows applications can uninstall themselves; other packages contains automatic repair or modification tools. In order to run these tools, select an item from the list and click Repair or Remove....

If the Repair or Remove... button is disabled for an application, that means that no uninstall tool is provided by that package.

7.3 The Control Panel tab

The Control Panel tab lets you launch control panel items that are installed by Windows programs, as well as some standard bottle-configuration tools.



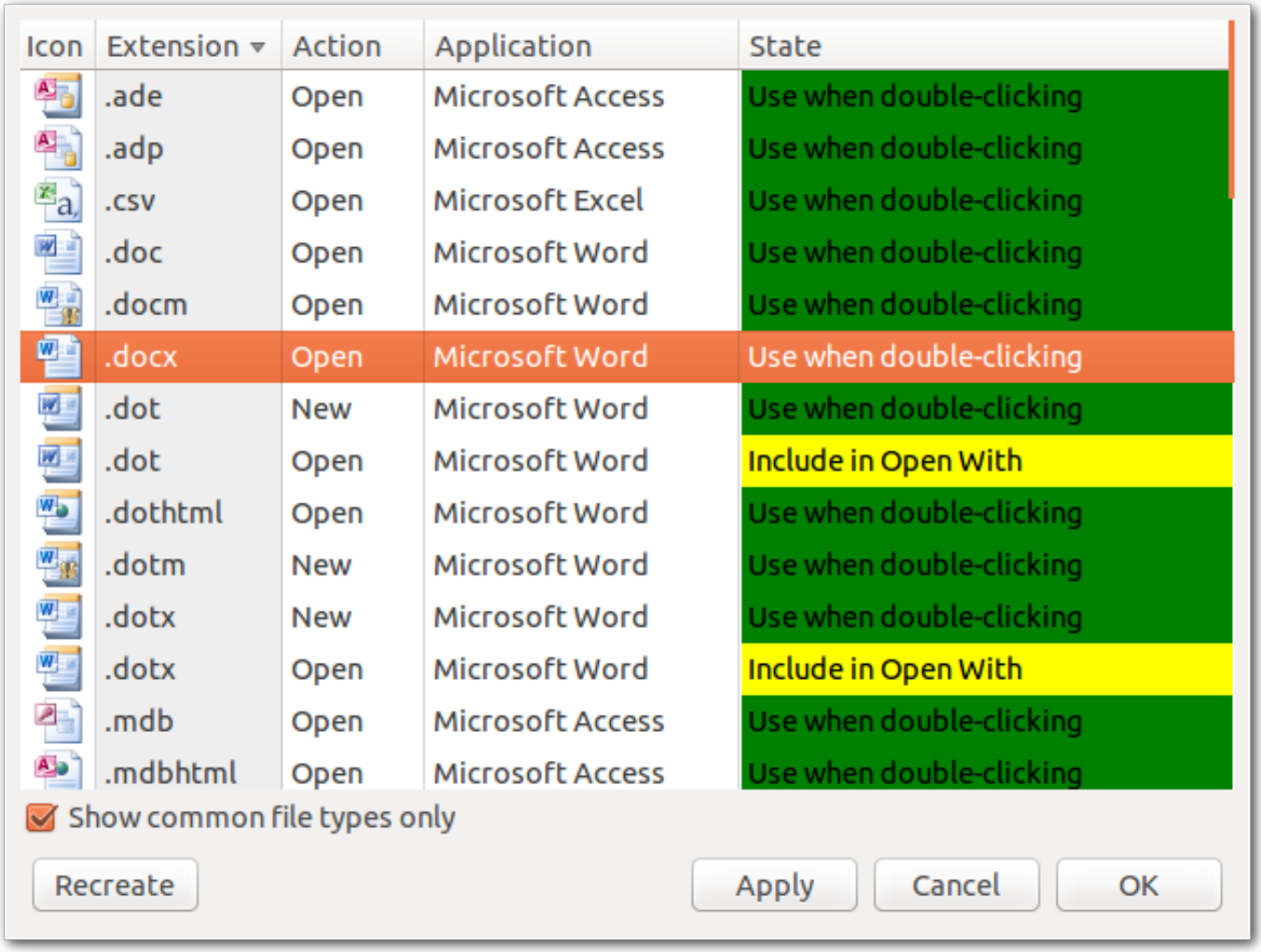
To launch, select the entry for the control panel that you wish to use and click Launch Selected Item.

Tip

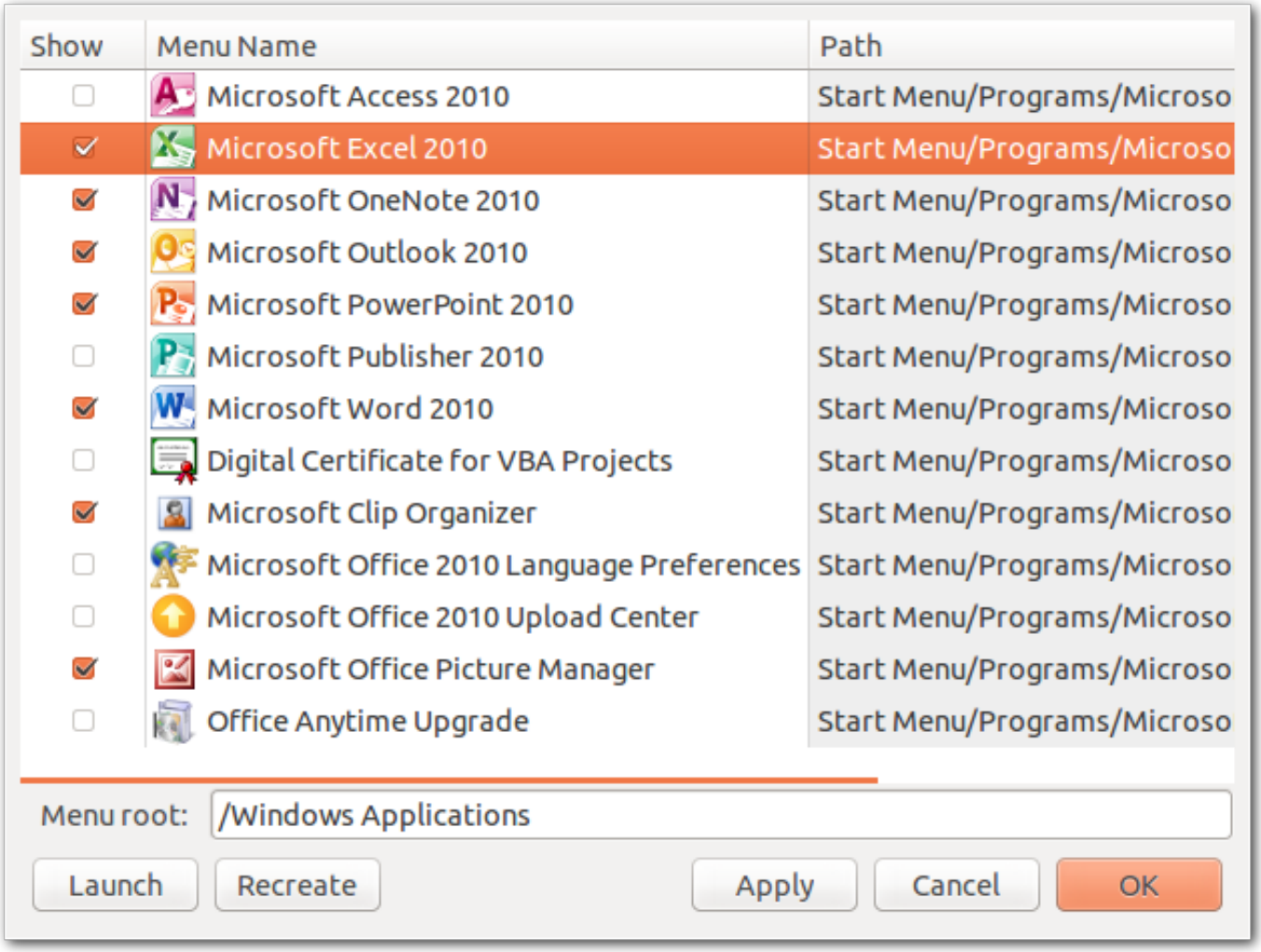
The vast majority of settings on your system should be changed using the configuration tools that come packaged with your OS and distribution. Most Windows control panels are unsupported applications, and their behavior may be unreliable, erratic, or destructive.

In addition to the tools that are installed by software installers, CrossOver provides several built-in control panel tools.

Edit Associations In most cases CrossOver should install reasonable file-type associations for each program that you install. The Edit Associations control panel allows you to fine-tune these associations. It may be useful in the event of a conflict between bottles or programs for a single file type.



Edit Menus Frequently applications install more menu icons than you are likely to use. This control panel allows you to disable unneeded icons and simplify your system menus.

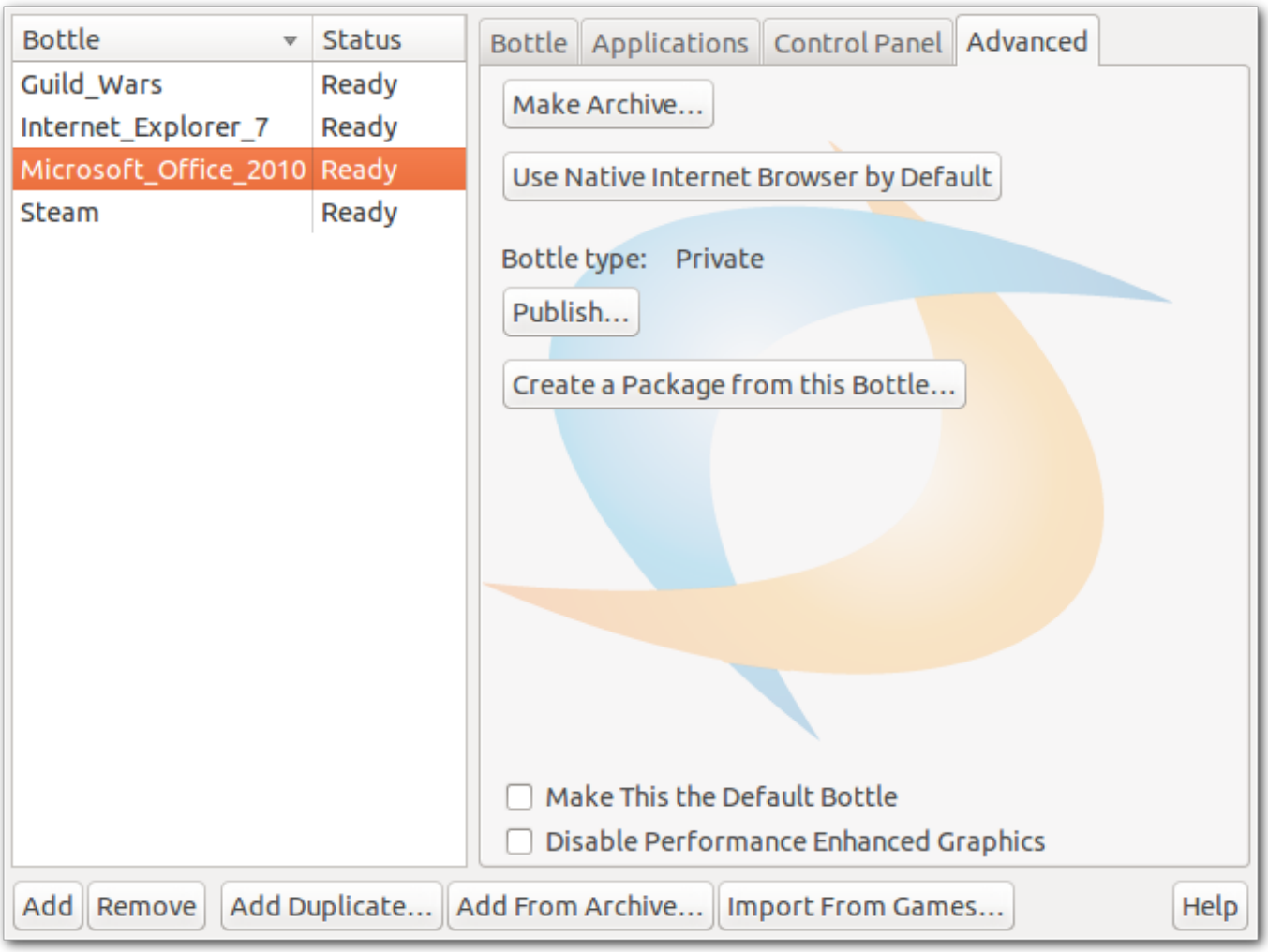


Simulate Reboot Some Windows applications require a system reboot to complete certain tasks. Also, occasionally, Windows programs get stuck in indeterminate states where their behavior is erratic or unreliable. Both of these problems can be addressed without rebooting your system -- just launch the reboot tool and simulate a reboot within a specific bottle.

Task Manager The task manager will display a list of processes running within a bottle. This tool may be useful to selectively halt programs which have stopped responding.

Wine Configuration This tool provides access to a wide range of bottle configuration settings. This tool is occasionally useful for solving issues with system integration -- if you contact tech support, you may be instructed to make changes with it.

7.4 The Advanced tab



The Advanced tab provides infrequently used bottle options. Most of the settings available here will be automatically set to reasonable defaults.

Make Archive... This button creates a compressed archive of the selected bottle. It is often prudent to make a backup archive of a bottle before installing new software or modifying bottle settings. Archives can be restored using the Add From Archive... button.

Use Native Web Browser by Default Often when a web browser is installed in a bottle, URLs are automatically opened by the browser in the bottle. Click this button to redirect those URLs to your standard system browser instead.

Bottle type All bottles, when created, are of type 'private'. A private bottle can only be used by a single user on the system, and is stored in that user's home folder.

A 'published' bottle is stored in a public directory (in `/opt/cxoffice/etc`) and can be used by any user of your system. Published bottles cannot be modified -- any changes that a user makes to the bottle are stored for that user only. The only way to make public changes to a published bottle is to make a private copy of the bottle, modify the private copy, and then re-publish.

Publish... The Publish... publishes a copy of the selected bottle under the specified name. Once the bottle is copied, all the users of your system will have access to the applications and data in that bottle.

Tip

Any private data that is stored in a bottle's C: drive (for example, passwords, login information, private emails, etc.) will be available to all users on the system. Generally it is best to publish a new bottle before you have configured or used any of the applications it contains.

Create a Package from this Bottle... If you need the ability to distribute a bottle to a large number of systems, you can use the Create a Package from this Bottle... option to create a self-contained .rpm, .deb, or .pkg file from a bottle. More information about this can be found in the Installing CrossOver on multiple systems chapter.

Make This the Default Bottle The default bottle is displayed in boldface in the bottle list. It is used to handle Wine commands in the shell, and start executables that are passed to CrossOver directly without any indication about which bottle should be used.

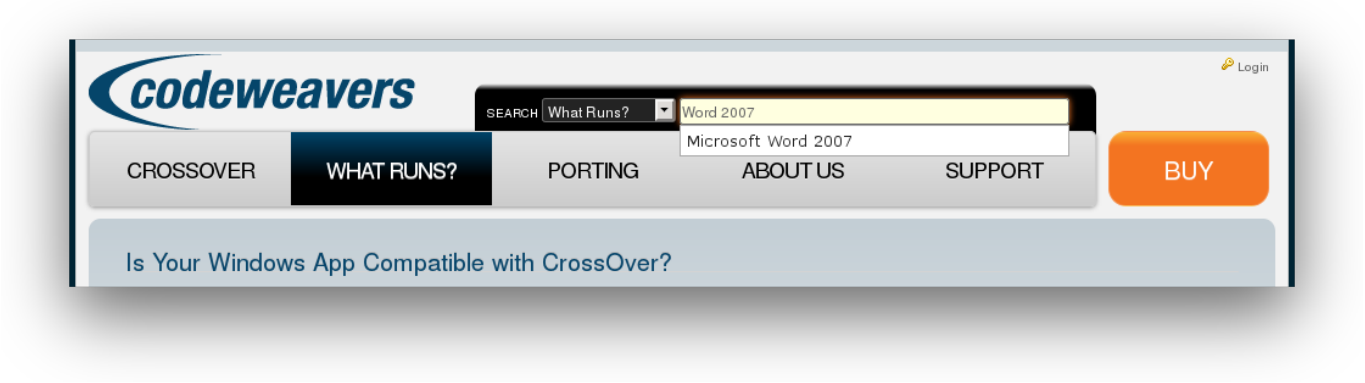
Chapter 8

Finding more information about running your Windows application with CrossOver

The CodeWeavers website has a database, the Compatibility Center, with information on how to run thousands of Windows applications in CrossOver. You can search for your application from the CodeWeavers home page, as pictured below.

First, visit CodeWeavers at www.codeweavers.com in your favorite web browser. Look for the search section labeled 'What Runs?' at the top of the CodeWeavers home page.

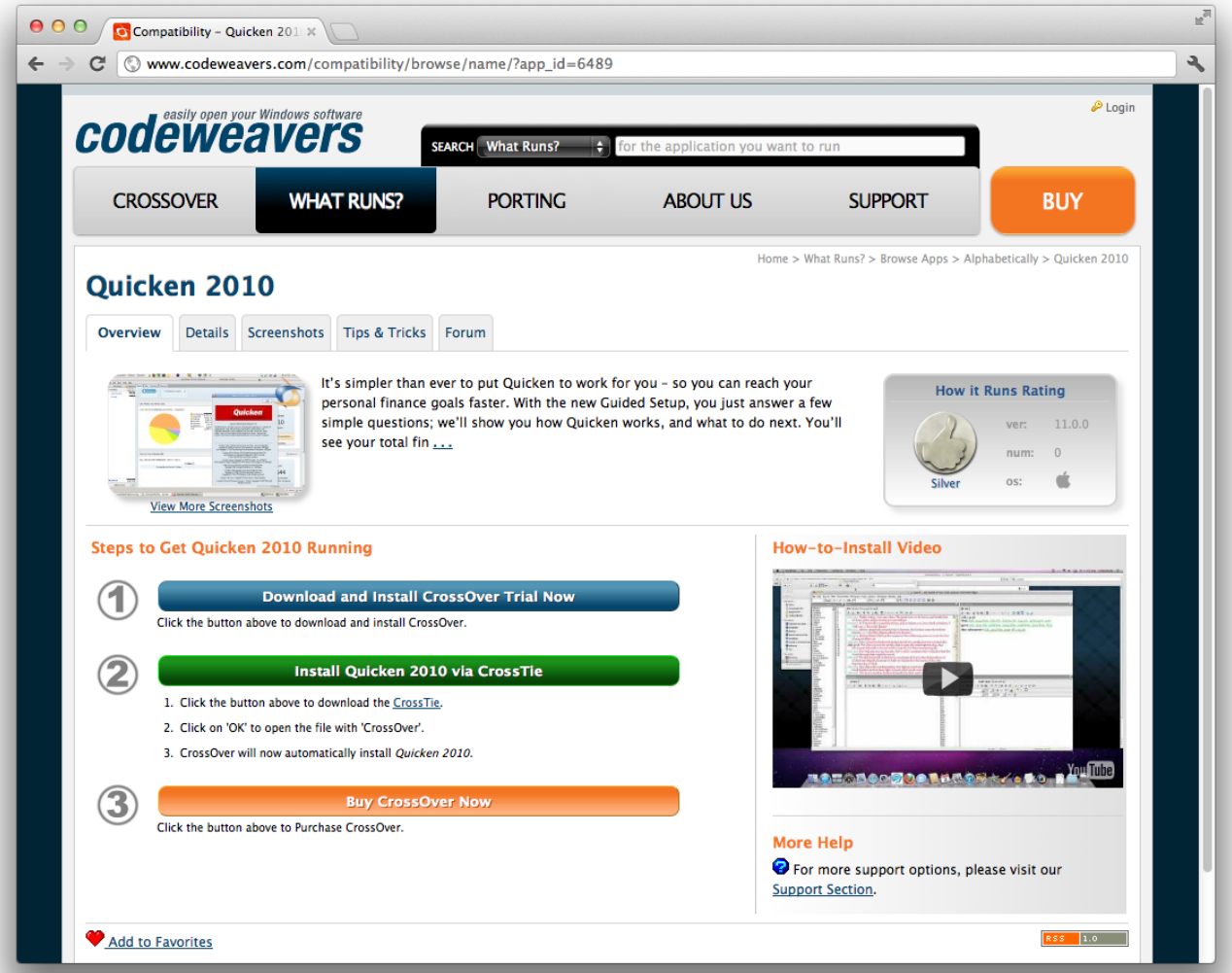
Enter the name of your application in the search section and press 'enter.' Below is an example of a search for Word 2007.



On the application's page you will find useful information, such as: the community's estimate of how well it will work in CrossOver; a forum dedicated to your application; and 'Tips and Tricks' for using your application with CrossOver.

If the application page has a green button labeled 'Install [your application name] via CrossTie', then a simple click on that button will let you install it on your computer.

Tip
If you have the CrossOver Software Installer set to automatically download new profiles, then these applications will also be already present in the assistant's application list. The Compatibility Center provides an alternative route for locating the same software for users who prefer to browse a website.



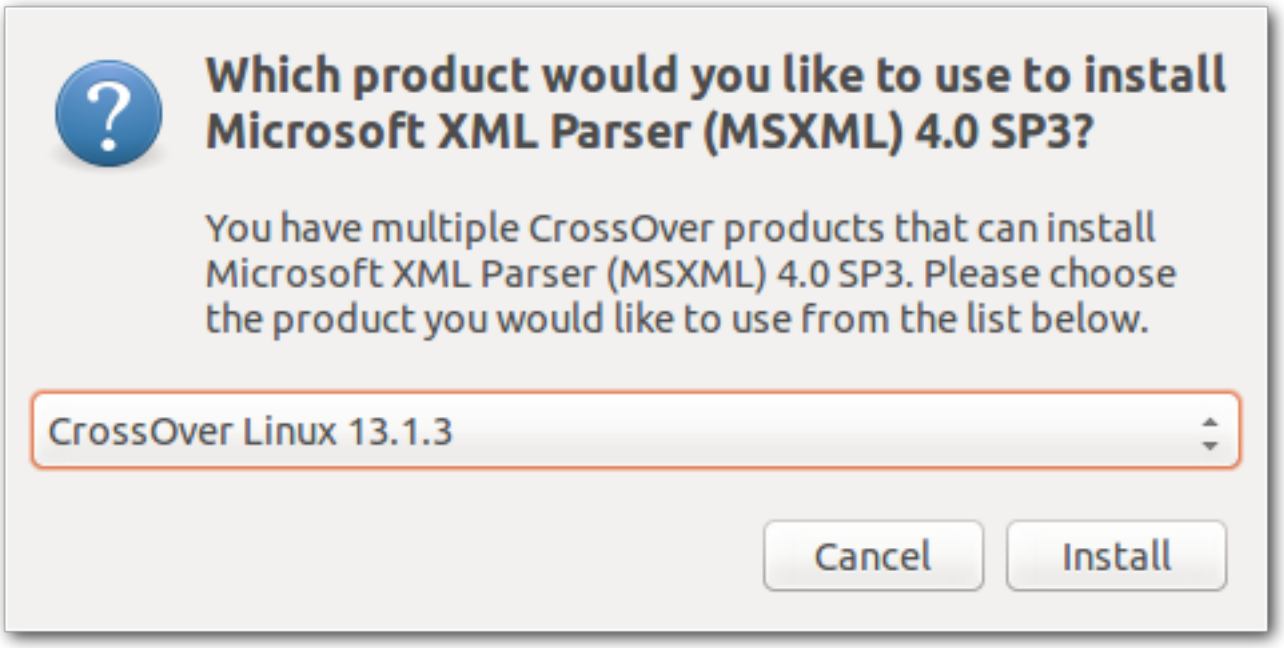
In most cases, a single click will launch the CrossOver Software Installer. With some browsers you may need to download the CrossTie file (it will have a .tie extension) and double-click to open it.

8.1 Using CrossTies with multiple CodeWeavers products

Starting with CrossOver XI, CrossOver will run both games and office applications like Microsoft Word. We recommend that you use the most modern version of CrossOver available to run all of your Windows software.

However if you own an older copy of CrossOver Games you may continue to use it alongside CrossOver XI and later if you wish to do so. If you have both CrossOver and CrossOver Games installed on your computer, you can chose which product to use when you install an application using a CrossTie file downloaded from the CodeWeavers website.

If CrossOver detects that you have more than one version of CrossOver installed which can handle a given CrossTie file, it will prompt you to make a choice about which version to use. The window below is an example of what you might see if you have attempt to install software via a CrossTie when you have two versions of CrossOver installed. Simply select the version of CrossOver you want from the drop-down menu and click Install. CrossOver will then install your software with the version you have selected.



Select your preferred version, and you'll be off and running.

Chapter 9

Advanced Manual Configuration Options

9.1 Installing CrossOver on multiple systems

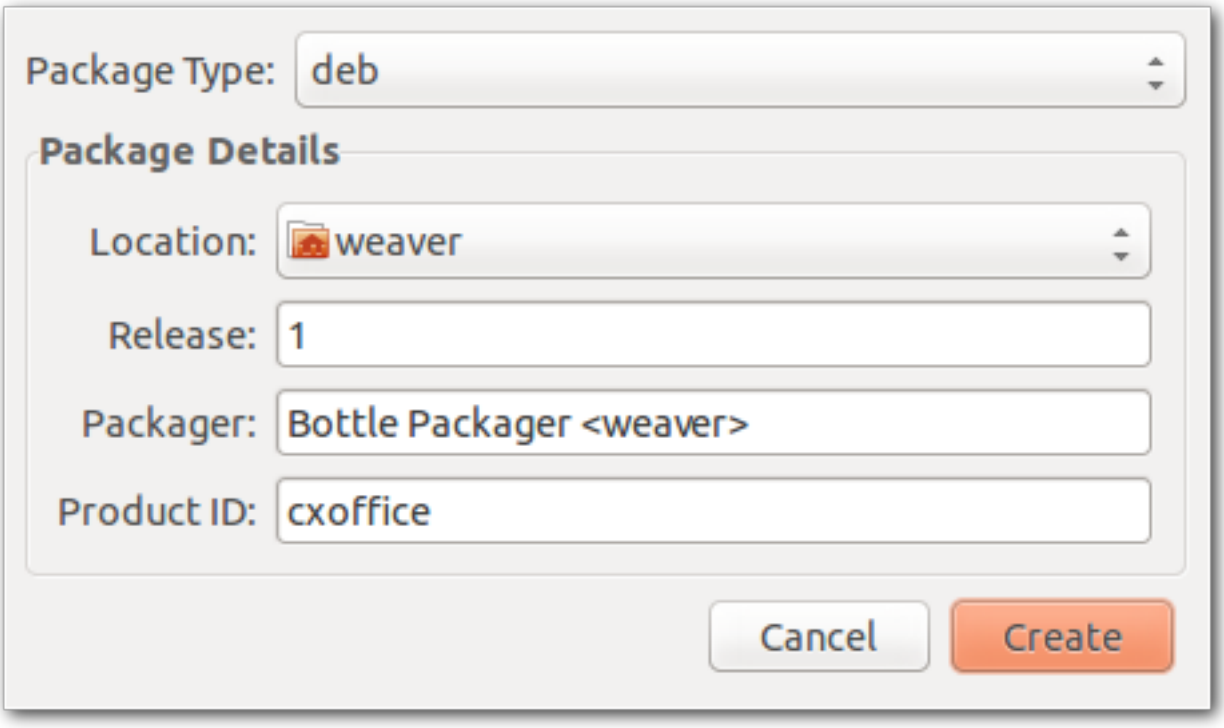
CrossOver Linux provides several ways to roll out Windows applications to a large number of users and on a large number of systems. The most basic of these tools is bottle publication which allows all the users of a single system to share a single installation of each application.

In order to install CrossOver on multiple stand-alone systems, we have provided the ability to create an RPM, Debian, or Solaris package from a bottle. Or, if you use NFS or Samba to share drives in your network, you can install using a shared volume.

9.1.1 Creating an RPM, Debian or Solaris package from a bottle

CrossOver has the ability to create an installable package out of a bottle. This service allows you to create a bottle on one system, package it up, and reinstall it on many additional machines. The resulting packages must be installed in conjunction with a corresponding CrossOver program package.

The package creation feature is available on the Advanced tab in the Bottle Manager.



Alternatively you can create the packages from the command-line. For instance the following command will create Debian and RPM packages for the *bottle-name* bottle:

```
$ ~/cxoffice/bin/cxbottle --bottle bottle-name --deb --rpm
```

Tip
Although you can create a package out of any kind of bottle (published or private), the bottle will be installed on any new system as though the bottle had been published on that system.

Note
To create Debian or RPM packages you will need your Linux distribution's corresponding packaging tools.

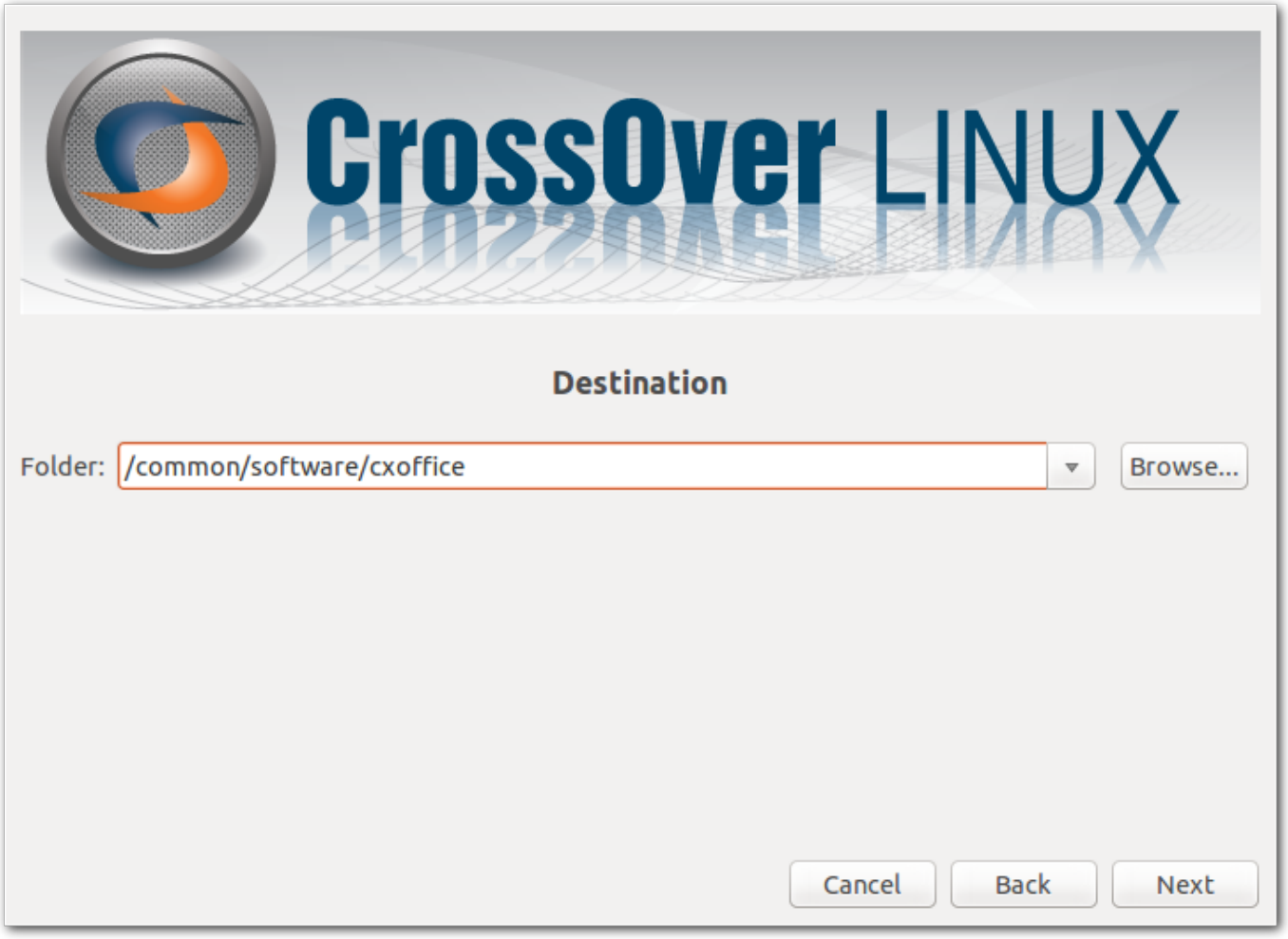
Once the bottle package installation completes, the applications it contains are ready to go. Make sure that you have purchased a CrossOver license for each system that you're using, and be careful to comply with all of the license terms for each Windows program. CrossOver does not enforce software licensing restrictions.

9.1.2 Installing onto a shared volume

CrossOver Linux may be installed on a shared volume and run on multiple systems. First, make sure that files created by root on the shared volume will belong to root. For instance:

```
# touch /common/software/root-file
# ls -l /common/software/root-file
-rw-r--r--  1 root root 0 Nov  4 14:07 /common/software/root-file
```

This should show that `root-file` belongs to root. Once this works, delete `root-file` and install CrossOver, specifying the shared drive as the install location.



If you are happy to run applications using the command line, then you're done. However, if you would like menus and associations to be available on your users' machines, then there are a few more steps.

Creating the CrossOver menus To create the CrossOver menu entries, run the following cxmenu command as root on each system.

```
# /common/software/cxoffice/bin/cxmenu --ro-desktopdata --crossover --install
```

Setting up the Windows executable association Associating the .exe extension with CrossOver lets users launch Windows executables (like notepad) by clicking on them in their file browsers. To enable it, run this command as root on each system:

```
# /common/software/cxoffice/bin/cxassoc --ro-desktopdata --crossover --install
```

Setting up the .tie association To associate the .tie extension with CrossOver so that users can install Windows applications using CrossTie profiles, run this command on each system:

```
# /common/software/cxoffice/bin/cxtie --register
```

Creating menus, associations, and plugin links for Windows applications With private multi-user installs, each user will have his or her own Windows menus, associations and plugins.

In order to recreate the menus and associations of a published bottle, run the **cxbottle** command as root on each system, like this:

```
# /common/software/cxoffice/bin/cxbottle --ro-desktopdata --bottle bottle-name --install
```

Where *bottle-name* is the name of your published bottle. If you have more than one published bottle on your shared drive, repeat the above command for each.

9.2 Side-by-side installations

Should the need arise, it is possible to install two or more versions of CrossOver side-by-side so they don't interfere. When this happens, each installation tags its resources with a 'product id', so it knows which desktop menus and associations belong to it.

When using the graphical installer all you need to do is pick a new installation directory. The installer will then notify you that another version of CrossOver is already installed elsewhere, and if you proceed it will automatically pick a new product id to avoid interference.

Tip
When upgrading a side-by-side configuration using the graphical installer, always double-check the installation directory to make sure you are upgrading the CrossOver instance you intended to.

It is also possible to set up side-by-side configurations using Debian or RPM packages. But to do so you must first repackage CrossOver to change the package name and the product id.

To do so you must first install the CrossOver version to repackage. You would typically do this in a user account using the graphical installer as this avoids interference with already installed packages. Then run the following command in that account:

```
$ ~/cxoffice/bin/cxrepackage --deb --productid cxnew --release 2
```

Where *cxnew* is both the new package name and the new product id, and *2* lets you keep track of the revisions of the new packages you create. To generate an RPM package instead of a Debian one, simply replace *--deb* with *--rpm*.

Note
To create Debian or RPM packages you will need your Linux distribution's corresponding packaging tools.

The new package can then be installed and deployed normally, next to the regular CrossOver package. You can also use it to create bottle packages that will work together with your new package instead of the regular ones.

9.3 Adding a new drive or customizing the drive label / serial number

CrossOver allows you to add new drives to be used by Windows applications, and to change their label or serial number. If you need to create a new drive or have an application which depends on a serial number or Windows volume label then follow the examples below.

For example to make the path */mnt* available as the drive *J:* in a bottle, you would execute the following command:

```
$ ln -s /mnt "~/.cxoffice/bottle-name/dosdevices/j:"
```

To associate this drive to the */dev/sda1* device you would add a double colon to the command.

```
$ ln -s /dev/sda1 "~/.cxoffice/bottle-name/dosdevices/j::"
```

For 'real' devices, CrossOver should automatically get the serial number and label for a volume. However you can also set these manually. To set the serial number of a given mount point you need to create a file called `.windows-serial` on the root of the virtual drive.

```
$ echo '12345678' >/mnt/.windows-serial
```

To set the label you would create a file called `.windows-label` on the root of the virtual drive.

```
$ echo 'MY_LABEL' >/mnt/.windows-label
```

9.4 Customizing bottles using bottle hooks

Bottle hooks are a mechanism that lets you automatically customize the bottles created by CrossOver. Because it relies on scripts, it is very flexible. For instance it can modify drive letter assignments but also registry settings, the contents of the `C:` drive, etc. This mechanism is especially useful when you want to customize a bottle which you distribute to a range of machines, or to customize a published bottle for each specific user.

Bottle hooks can be created at three levels:

- System-wide hooks apply to all bottles on the system, including non-root user bottles. Thus they are ideal to adapt the bottles to the configuration or hardware of the machine. These hooks are located in the `$CX_ROOT/support/scripts.d` directory.
- User hooks are the same as system-wide hooks but apply only to one specific user's bottles. They are run after all the system-wide hooks have been run. They are located in the `~/.cxoffice/scripts.d` directory.
- Finally, each bottle can have its own set of hooks. These are especially suited to configure a published bottle for use by each non-root user. This is also the only kind of hook which is automatically packaged with the bottle when it is archived, and is thus guaranteed to run when the bottle is restored later, even if this is on another computer. These hooks are located in the `scripts.d` directory in the bottle.

Each hook is an executable file, usually a shell script, and must be placed in one of the above hook directories. The name of the hook must be of the form **`nn.name`**, where **`nn`** are two decimal digits that dictate the order in which the hooks are run, and **`name`** must not contain any dot or tilde and usually indicates the hook's purpose.

The hooks are then called as described in the following events:

- When a bottle is created

  `hook` create *`template`*

  The *`template`* parameter indicates the name of the template the bottle is based on, for instance '*`win98`*'.

- When a bottle is restored

  `hook` restore

- When a bottle is upgraded to a new CrossOver version

  `hook` upgrade-from *`old-bottle-version`*

  Where *`old-bottle-version`* is the CrossOver version the bottle was last used with. This can help you gauge how out of date the bottle was, but note that the hooks are called only after CrossOver has upgraded the bottle.

- Before and after a bottle stub is created

  `hook` pre-create-stub *`published-wineprefix`*

  `hook` create-stub *`published-wineprefix`*

  This case happens when a published bottle is used in a non-root account for the first time. In this case the `$WINEPREFIX` environment variable points to the freshly created bottle stub, while *`published-wineprefix`* points to root's reference copy in `/opt/cxoffice/etc`.

- Before and after a bottle stub gets updated

  `hook` pre-update-stub *`published-wineprefix`*

  `hook` update-stub *`published-wineprefix`*

  This case happens when the administrator has updated the published bottle's reference copy in *`published-wineprefix`* and the user's bottle stub must not be updated to match.

In all cases the hooks are called in the Wine context. This means they don't need to use the `--bottle` option and that they can count on the following environment variables being set:

`CX_ROOT` Contains the absolute path to the directory where CrossOver is installed.

CX_BOTTLE Contains the name of the current bottle.

WINEPREFIX Contains the absolute path to the bottle directory.

Bottle hooks can also use the **wine** script to call WineLib or Windows applications to modify registry settings or other aspects of the bottle.

Here is an example of a bottle hook that modifies the drive letter assignments so that there is no `Y:` drive, and the `H:` drive points to the user's `$HOME` directory.

```
#!/bin/sh
rm "$WINEPREFIX/dosdevices/y:"
if [ ! -d "$WINEPREFIX/dosdevices/h:" ]
then
    ln -s -f "$HOME" "$WINEPREFIX/dosdevices/h:"
fi
```

9.5 Setting the bottle search path

One quick way to move bottles to a non-default location and have CrossOver still find them is to first create a bottle in CrossOver, move the bottle to the new location, and then create a symbolic link in the `~/.cxoffice` directory which points to the bottle's new location.

You can also control the list of directories where CrossOver looks for bottles by setting the `CX_BOTTLE_PATH` environment variable. By default this variable is set to `~/.cxoffice`. To not have to set the modified path manually each time you run CrossOver, edit `~/.cxoffice/cxoffice.conf` and add the following lines:

```
[EnvironmentVariables]
"CX_BOTTLE_PATH"="/extra/bottles:~/.cxoffice"
```

CrossOver will then first look for bottles in `/extra/bottles` and then in the standard location. Also note that CrossOver will create new bottles in the first writable directory present in the search path. So order is important.

Furthermore CrossOver will not move existing bottles to the new location. So you need to either keep the default bottle location in the list, or to move your existing bottles manually. A simple move command should do the trick:

```
$ mv "~/.cxoffice/bottle-name" /extra/bottles
```

If you installed CrossOver globally you may want this setting to have an effect on all users. To do so you would set it in the global configuration file, that is in `/opt/cxoffice/etc/cxoffice.conf`. You should also make sure each user gets his own bottle directory. Usually you would do so by using the `USER` environment variable like so:

```
[EnvironmentVariables]
"CX_BOTTLE_PATH"="/extra/${USER}/bottles"
```

Similarly, when you publish a bottle it is normally put in `/opt/cxoffice/etc`. However you can change this by setting the `CX_MANAGED_BOTTLE_PATH` environment variable, for instance by adding the following lines to `/opt/cxoffice/etc/cxoffice.conf`:

```
[EnvironmentVariables]
"CX_MANAGED_BOTTLE_PATH"="/extra/published_bottles"
```

Note that this time we've put this setting in the global configuration file so it is accessible by all users. Also, as for `CX_BOTTLE_PATH`, new bottles will be placed in the first writable directory and existing bottles will not be moved around.

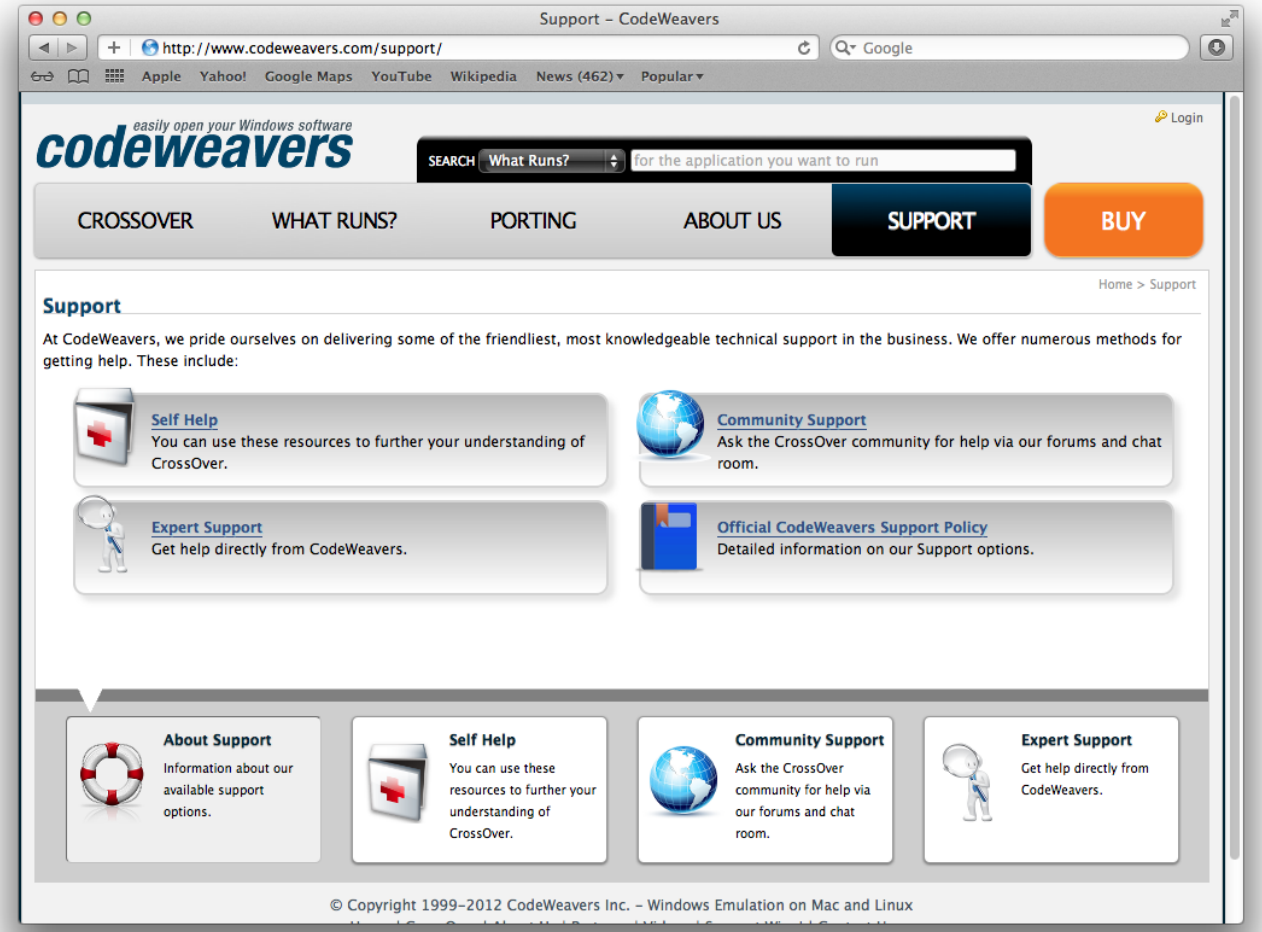
Chapter 10

Troubleshooting

In case of problem, the first place to start is the CodeWeavers Support Library. It is updated regularly to document known issues and their workarounds. With luck the solution to your problem may already be waiting for you.

You can help make CrossOver Linux an even better product by reporting any new problem you come across to the CodeWeavers support site. Before you can enter a ticket, you will need to log in to the system.

Tip
This is a *public* system. Emails sent to this address will be viewable by all. This also means that you can access past support issues and their resolution by going to http://support.codeweavers.com. There are privacy options available if you do not wish your request to be public. To learn more about these, read the FAQ on that site.



When reporting a problem, please include a description of actual vs. expected behavior in your reports, as well as the steps we should go through to reproduce the problem. It also helps to know which distribution of Linux you are using (including versions, please), whether you are using Unity, GNOME, KDE or neither, and whether you have installed CrossOver as root or in a regular user account.

Appendix A

Directory Structure, Location of Files

CrossOver creates two directories during its installation and setup. The installation process creates a directory structure at a user-specified location, whereas the setup directory is always in a fixed location relative to the user's home directory.

The Bottle Manager may also modify the MIME type associations on the system as well as the Unity, GNOME and KDE menus.

A.1 Installation Files

The location of the installed files, which can be specified during the installation, defaults to `~/cxoffice` for a non-root installation, and `/opt/cxoffice` for a root installation.

cxoffice The installation tree has the following structure:

`bin`	This directory contains all the executable programs used by CrossOver. As a general rule, it is better to *not* place this directory into your `PATH` as it may conflict with other versions of Wine. We recommend creating symbolic links to individual programs in `/usr/bin` instead.
`lib`	This directory contains all the shared object files used by CrossOver. Again, we recommend against adding this directory to your `ld.so.conf` or to your `LD_LIBRARY_PATH`.
`doc`	This directory contains the CrossOver user guide.
`.mojosetup`	This directory is generated during installation and contains information used during the uninstallation process.
`share`	This directory contains supporting files used by CrossOver.
`support`	This directory contains your system's published bottles.

cxoffice/etc The `etc` directory contains the CrossOver configuration. This directory contains the following files:

`cxoffice.conf`	The CrossOver configuration file. The settings are fairly heavily commented, so there is a good chance that if you were so inclined, you could meaningfully modify it with a text editor. However, note that for most users we recommend using the Edit → Parameters menu instead.
`cxoffice.conf.*`	The Bottle Manager automatically backs up old versions of configuration files. It can get untidy -- feel free to delete extraneous files.
`license.txt license.sig`	These files contain your CrossOver license.

~/.cxoffice This directory contains all of the CrossOver settings, and all of your bottles.

`cxoffice.conf`	The CrossOver configuration file. The variables are fairly heavily commented, so there is a good chance that if you were so inclined, you could meaningfully edit it with a text editor. However, note that for most users we recommend using the Bottle Manager to modify this file.
`installers`	This directory contains any installers that the CrossOver Software Installer has downloaded for you so they don't need to be downloaded again later. This directory can get large. Feel free to delete it to save space.
`tie`	This contains the updated CrossTie profiles that the CrossOver Software Installer has downloaded for you. It should not get very large but you can delete it if you wish.

~/.cxoffice/bottle-name Each bottle directory contains the following files and directories:

`cxbottle.conf`	This file contain bottle-specific CrossOver configuration options.
`*.reg`	Files that contain a simulated registry for the Windows environment.
`drive_c`	A complete directory structure replicating a Windows C: drive.
`dosdevices`	A directory containing definitions for the Windows devices.
`cxassoc.conf` `cxmenu.conf` `desktopdata` `windata`	These files and directories contain information about the bottle's associations, menus, etc.

A.2 Menu and Association files

The Bottle Manager sets up Menus and Associations using a variety of different system files. The particular method that is used varies by operating system. The best way to investigate where menus and associations may be placed is by running the **locate_gui.sh** tool.

```
$ ~/cxoffice/bin/locate_gui.sh
```

or, as root

```
$ /opt/cxoffice/bin/locate_gui.sh
```

locate_gui.sh will list the different association and menu systems that are available on your system (e.g. Unity, GNOME, KDE) and then list the directories used to create these menus and associations.

Appendix B

Glossary

B.1 Bottles

Important
CrossOver Linux includes support for multiple bottles. A bottle is a virtual Windows environment with its own isolated C: drive, fonts, registry, and software.
Bottles are especially useful when installing unsupported software or when testing the behavior of a new application. They can also be used to run different versions of the same program (Microsoft Office, for example) at the same time.

B.2 Published Bottles

A published bottle is a bottle that is available for use by all users on a system. These bottles are stored in the `/opt/cxoffice/etc` folder and can be copied or deleted but not modified. A private bottle, by contrast, is a bottle which is stored in a single user's home and can be accessed only by that user.

Any user may run the applications in a published bottle. All files that are created or changed during use are stored in that user's home folder and do not affect other users on the system.

For example, if a user wants to install Internet Explorer and then provide it for use by other family members, he or she would install Internet Explorer into a private bottle, and then publish that bottle. Subsequently, other users can run CrossOver and launch Internet Explorer without engaging the bottle manager or installing anything.

Once a bottle has been published, it cannot be modified. In order to modify a published bottle it is necessary to make a private copy, modify it, and re-publish. Any copy of a published bottle is automatically made private.

B.3 CrossOver Software Installer

The CrossOver Software Installer is an assistant that will guide you through the process of installing Windows software. See the Installing Windows Software section of this guide for more details.

B.4 CrossTie

CrossTie profiles are small files that contain instructions that tell the CrossOver Software Installer how to install and configure a given Windows application so it works best with CrossOver. You can find out more about CrossTies and how to acquire them in the Compatibility Center section of this guide.