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# Harlequin Dylan

## Guide to the Environment

Version 1.0 ALPHA

This guide ...

**Contents**



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*Harlequin Dylan: Guide to the Environment*

Version 1.0 Alpha

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# Preface

## Welcome!

Welcome to Harlequin Dylan! Thank you for choosing this product. Yap.

## Approach

This guide is intended to show you how to work best with Harlequin Dylan.  
It guides by example: rather than explaining how to do things in the abstract, it gives concrete examples.

It provides practical examples of the sorts of things you will do all the time when writing Dylan applications.

## Conventions used in this book



# 1

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## Quick Start

### 1.1 Introduction

Welcome to Harlequin Dylan! This guide explains how to use Harlequin Dylan's development environment to develop stand-alone Dylan applications. It covers the ... THIS IS PREFACE MATERIAL.

This first chapter is a quick introduction to Harlequin Dylan's main features.

### 1.2 Starting Harlequin Dylan

Start Harlequin Dylan by choosing XXX. A splash screen appears, followed shortly after by this dialog:

XXXXXXXXX

XXXXXXXXX

XXXXXXXXX

1. Select the "Open an example" radio button, then click **OK**.

The Harlequin Dylan Examples dialog appears.

The Harlequin Dylan Examples dialog has a tree control whose nodes are example Dylan applications. In this guide, we are going to look at the example called Othello.

You will need your own copy of the files that make up the Othello example, because we are going to modify it.

2. Check the “Make a copy for my own use” box at the bottom of the dialog.
3. Select the “Othello” node, then click **OK**.

The Open dialog appears.

4. Choose a directory for your copy of the Othello files.

Harlequin Dylan copies the Othello files to the directory you choose.

The Workspace tool appears.

The Workspace tool is one of five tools in the Harlequin Dylan. From now on, we simply call it the Workspace.

The other tools in Harlequin Dylan are the Browser, the Editor, the Interactor, and the Debugger. We will see those later.

## 1.3 Projects

In the Workspace, you can see the *project* that you are working on. The Workspace currently shows the Othello project, `othello.proj`.

XXXXXXXX

XXXXXXXX

XXXXXXXX

Harlequin Dylan treats all your work as part of a development project. Applications are the end product of projects.

Harlequin Dylan stores information about your project in a *project file*. A project file describes the source files and compilation options that Harlequin Dylan uses to make the your application. COMMENT: Presumably a project could also point to source files that aren't part of your app? And other things. Need to define this better.

COMMENT: yap some more, and better, about projects.

Harlequin Dylan identifies project files from their name suffix, `.proj`.



## 1.4 Building a standalone application

We can use the Workspace to build a standalone application from the Othello project. A standalone application is a `.exe` file and any associated DLLs, resources, and help files.

COMMENT: 1997-05-28: Is the game called Othello in the US? Is it a trade name anywhere? Maybe Reversi is the name we must use.

1. Choose **Build othello.exe** from the **Build** menu.

Harlequin Dylan starts building the application.

**Note:** From now on, we use the notation **Menu > Command** to mean the item **Command** on the menu **Menu**. So “Choose **Build > Build othello.exe**” would mean the same as step 1 above.

COMMENT: Does the environment report anything when the build completes? Should we point them to the Warnings page?

Once the application is built, you can run it. The Workspace menu command **Run > Start** runs the latest executable built for the current project.

2. Choose **Run > Start**.

The Othello window appears.

XXXXXXXX

XXXXXXXX

XXXXXXXX

The Othello application is now up and running. If you do not know the game, you can read the on-line help available from its **Help** menu.

## 1.5 Making changes

<justification for change to Othello — we don't know what the change will be yet>

1. If you are still running Othello, exit it by selecting **File > Quit**.
2. Select the Sources tab in the Workspace.

The Sources page has a tree control that shows the source files making up the Othello application. COMMENT: Tour sources a little.

<justification of needing the XXX facility>

Among the Othello example files we copied earlier, there is a pre-prepared Dylan source file with the changes we need for the XXX facility. To incorporate it into our Othello application, we simply add it to the project.

3. Choose **Project > Insert File**.

COMMENT: Does the file have to be described anywhere, like LID file?  
Is there any ordering issue? Do we have to have selected a particular node in the tree?

The Open dialog appears.

4. In the Open dialog, select `changes.dylan` and click **OK**.

Harlequin Dylan adds `changes.dylan` to the project.

Now `changes.dylan` is part of the sources used to build the Othello application, we can rebuild `othello.exe`.

5. Choose **Build > Build othello.exe** in the Workspace.

Harlequin Dylan builds the application again.

This time, Harlequin Dylan compiles only one file: `changes.dylan`. No changes had been made to the existing source files, so it did not need to recompile them. It just linked the existing compiled files with the new one to make the new version. COMMENT: Compiled-file suffix details? DLLs?

This feature is called *incremental compilation*. It can save a lot of time during development, when you want to rebuild your application after a small change in order to test its effects.

You can now run the new version of Othello.

6. Choose **Run > Start** in the Workspace.

A new Othello window appears.

# 2

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## Fixing Bugs

### 2.1 Introduction

Though we can play Othello, we cannot save games in progress and resume play at a later date.

In this section, we add a save feature to the game, available through **Save** and **Open** commands on its **File** menu. (If you look at the version of Othello we have at the moment, you will see that those items are disabled.) The code for the save feature has some small bugs that we must correct before the save feature will work properly. In doing so we will see the Editor and Debugger.

### 2.2 Rebuilding the application

There is another pre-prepared Dylan source file with the changes we need for the game-saving facility.

1. Choose **Project > Insert File**.

The Open dialog appears.

2. In the Open dialog, select `changes2.dylan` and click **OK**.

Harlequin Dylan adds `changes2.dylan` to the project.

Now we can rebuild `othello.exe`.

3. Choose **Build > Build othello.exe** in the Workspace.  
Harlequin Dylan builds the application again.

## 2.3 Compiler warnings

Notice that during compilation, Harlequin Dylan reports that **XXX**. The Workspace has a Warnings page where it collects compile-time warnings together.

4. Select the Warnings page in the Workspace.

Each warning is hyperlinked to the source definition that caused it. If you click on the warning, Harlequin Dylan brings up the Editor on the definition.

5. <ACTION> on the warning.

The Editor appears.

Now we can see the faulty definition. <Describe the problem and how it is solved>

6. Go to the Editor and type in the changes.

COMMENT: Focus action?

COMMENT: Something like this: Harlequin Dylan's Editor is a very powerful, but it has been designed so it can be used like a simple editor, such as Notepad. We will learn more about the Editor in chapter X, but for now you can treat it as if it were like Notepad.

Note: Previously Open/Save were disabled / grayed out. Also, Filesystem etc. libraries already used in first version of project.

7. Choose **File > Save** in the Editor.

Having fixed the source of the warning, we can rebuild the application and try out the new version.

8. Choose **Build > Build othello.exe**.

See updated app

Play game

9. Try to save a game.

Enters debugger. Runtime error: saves 0s and ones (numbers) to stream that is made of <byte-chars>.

**10.** Open, edit, save, rebuild. Application still running -- is updated.

**11.** Try again. Without restarting. Save works. Now do open.

Enters debugger. Stack-related bug. Diagnosis: reads off end of game file. One-off error on elements: for ... to 63 not for ... below 63. Must browse stack to fix. Then double-click on local variable, goes to function definition.

**12.** Open, edit, save, rebuild.

Works.

