

Visual Disassembler
for the Microchip ©
PIC10, PIC12, PIC16, PIC18
Microprocessor Family

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Introduction

Visual Disassembler is an interactive multiple pass disassembler for the Microchip © PIC10, PIC12, PIC16, PIC18 microprocessor families. The user simply opens an Intel hex file and the file is disassembled and placed in a text view. The user does not edit the text directly. Comments and program labels are added by address through dialog boxes. Each entry shows an immediate result in the text view. Program labels are resolved throughout the entire file. Intermediate work can be saved and resumed later. Upon completion of the dis-assembly the file can be saved as an assembly listing text file. The assembly listing can be easily edited to create an assembler source file. The assembler source file may require editing due to the requirements of the assembler.

Features

- PIC10, PIC12, PIC16, PIC18 part selection
 - resolves memory space, registers, and ISR vectors
- Memory space control
 - Allows definition of data and code areas in the memory space
 - Defining data space prevents the dis-assembly of program data
- Resolve program labels interactively
 - Define both data and memory segments for proper dis-assembly

The program is a plug-in for the Eclipse IDE and can be sold as an individual component or bundled with the Eclipse CDT.

This can be bundled with the Visual Disassembler:

Latest ECLIPSE CDT

<http://www.eclipse.org>

Visual Disassembler Jar

com.favorites4u.visualdisassembler.pic_2.0.0.jar

<http://CreativeRealtimeHeuristic.com>

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Questions?

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Visual Disassembler

For the Microchip © PIC10, PIC12, PIC16, PIC18

Requirements

Visual Disassembler

The Visual Disassembler requires Eclipse version 3.6.x. and will run on both Windows and Linux platforms.

The Visual Disassembler jar file must be installed in the eclipse/plugins directory.

Eclipse

Eclipse 3.6.x requires the Java Runtime Environment (JRE)6.

It can be obtained from <http://www.oracle.com/technetwork/java/index.html>

Installation

Unzip the file in the CD into a new folder.

Find the eclipse folder and locate the file eclipse.exe.

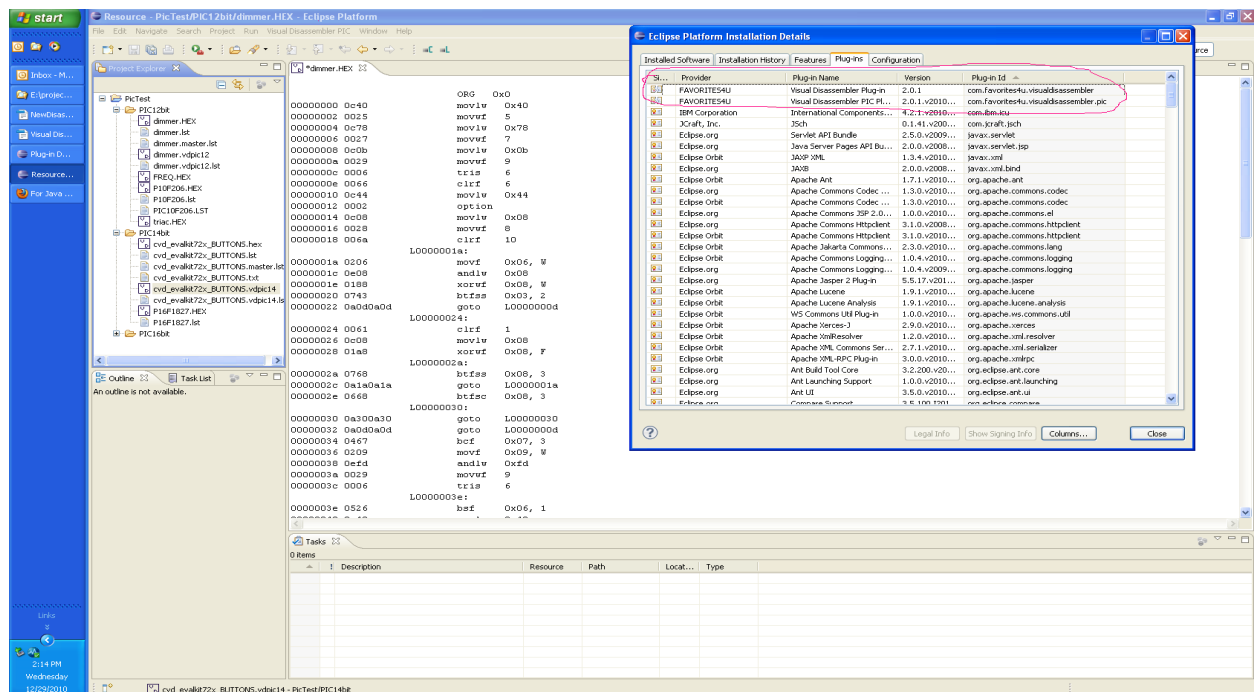
Create a shortcut to your desktop.

Note:

You can create a clean directory by unzipping the eclipse CDT file into a new folder.

Next copy the visual disassembler jar file into the eclipse/plugins directory.

Type eclipse -clean and verify that the visual disassembler plugin is installed by looking in the Help\About Eclipse Platform\Installation Details dialog box..



Quick Start

1. Open hex file – select hex file and double click it
2. Select Instruction Set word size – 12, 14 or 16 bit
3. Select Device
4. Modify Control Table
5. Add comments
6. Add labels
7. Save as vdpicxx file
8. Repeat steps 3 through 6 until satisfied with dis-assembly
9. Save listing to text file

Typical View

A typical view of the Visual Disassembler is shown below in figure 1.

File Types Opened by the Application:

The default file extension is - .vdpicxx

An alternative extension is an Intel hex file - .hex

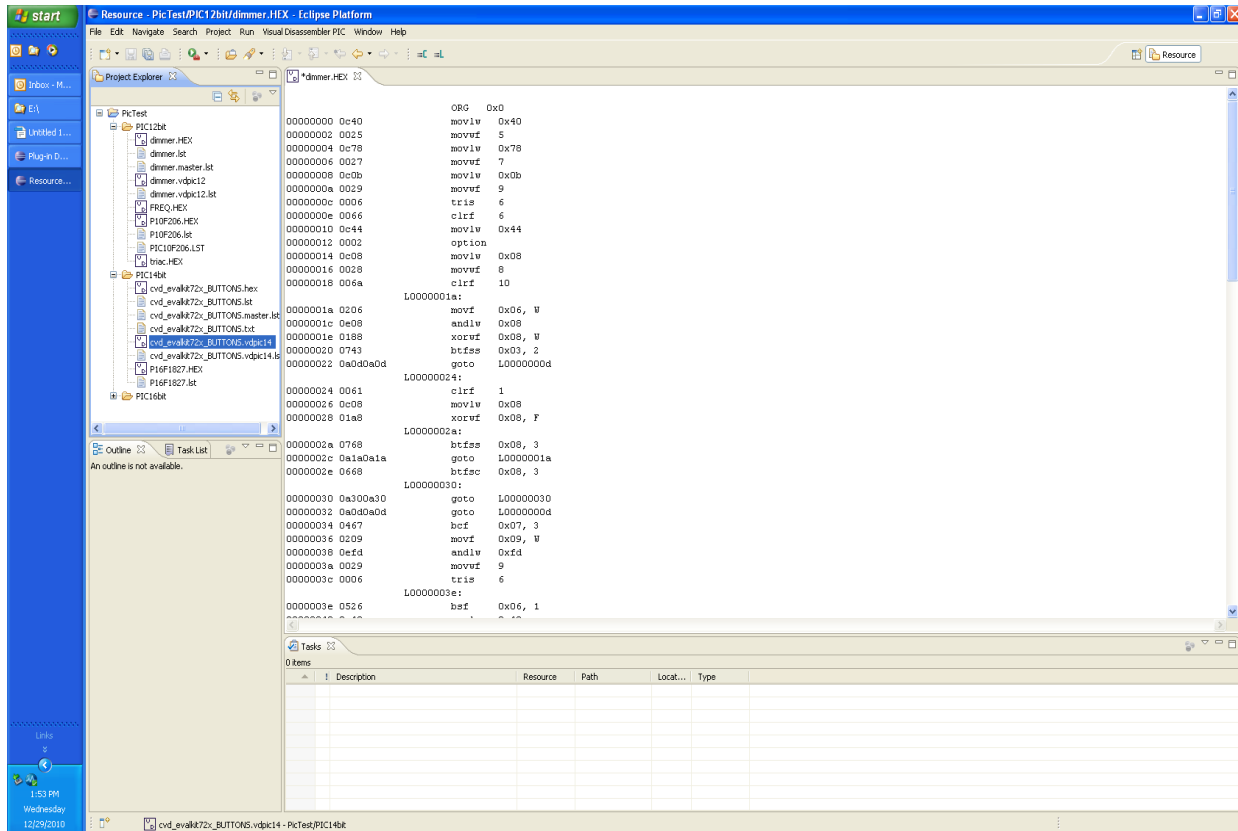


Figure 1

Open a File

Intel Hex File

Select a file with the extension .HEX or .hex and double-click.

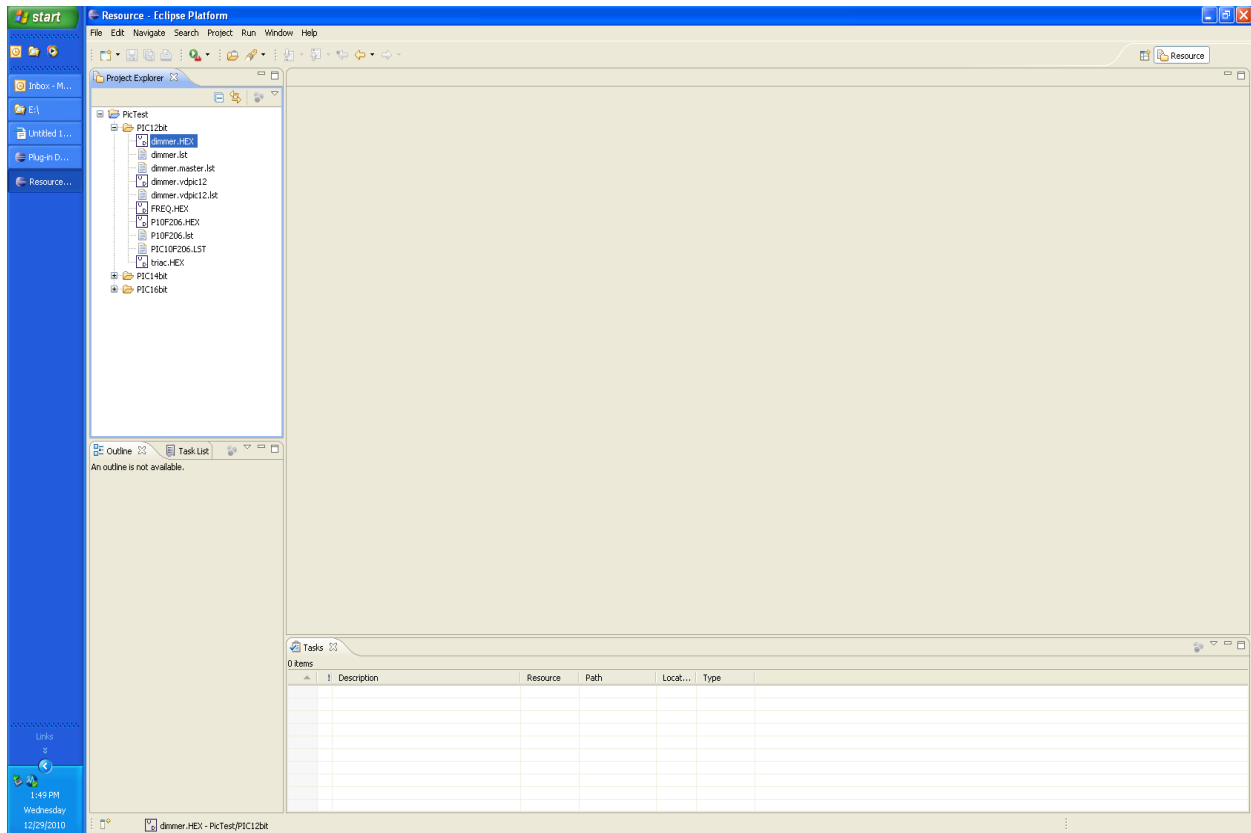


Figure 2

Visual Disassembler

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VDPICxx File – Default file format

Select a file with the file extension vdpicxx and double click (see figure 3).

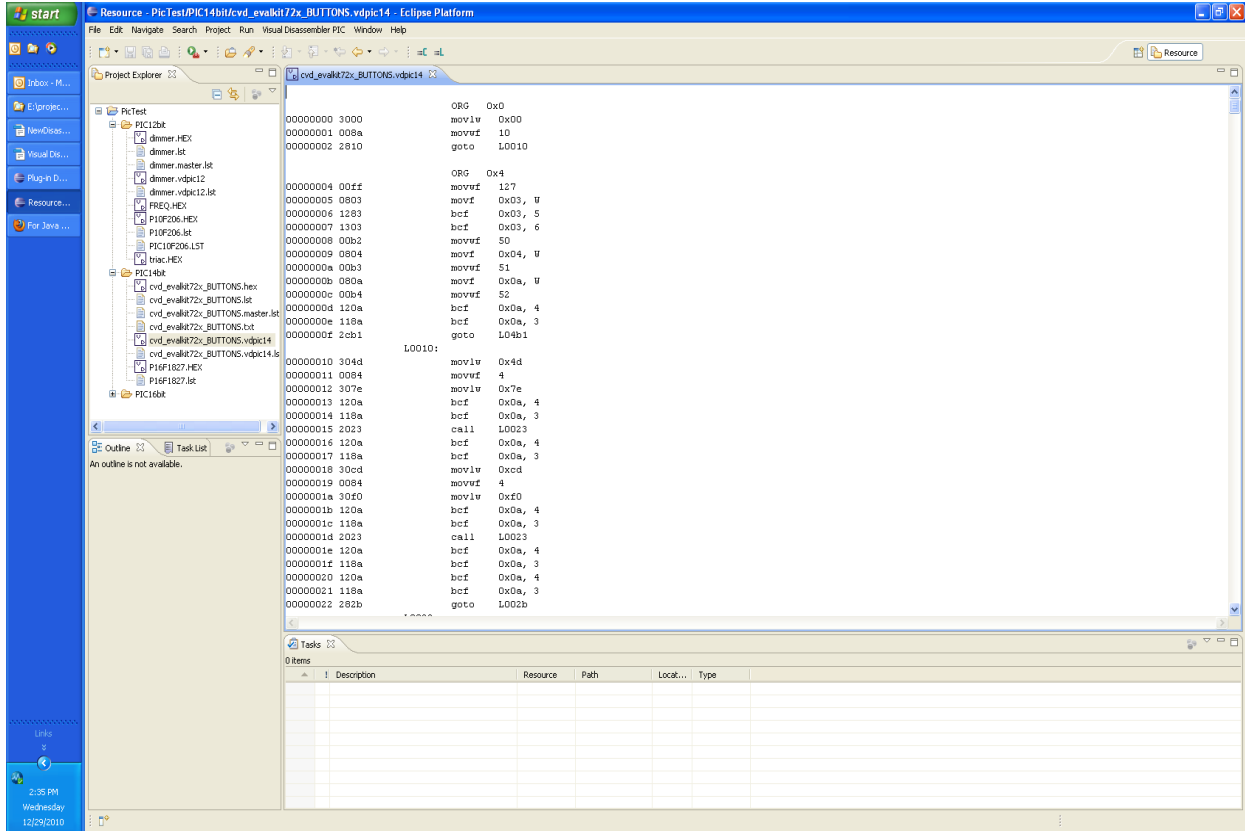


Figure 3

Visual Disassembler

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Menu View

Figure 4 shows the Visual Disassembler PIC menu items.

- Select Device... Allows the user to select a PICxx device file (*resolves registers, vectors and memory space*)
- Edit Comment... Allows the user to add comments at any location in the source file
- Edit Program Label... Allows the user to add labels at any program location (*These labels are resolved on data access, branch and call instructions.*)
- Edit Control Table... Allows the user to define the memory space boundaries. Program and data space.
- Instruction Set Allows the user to choose the instruction set program word size. 12, 14, or 16 bits.

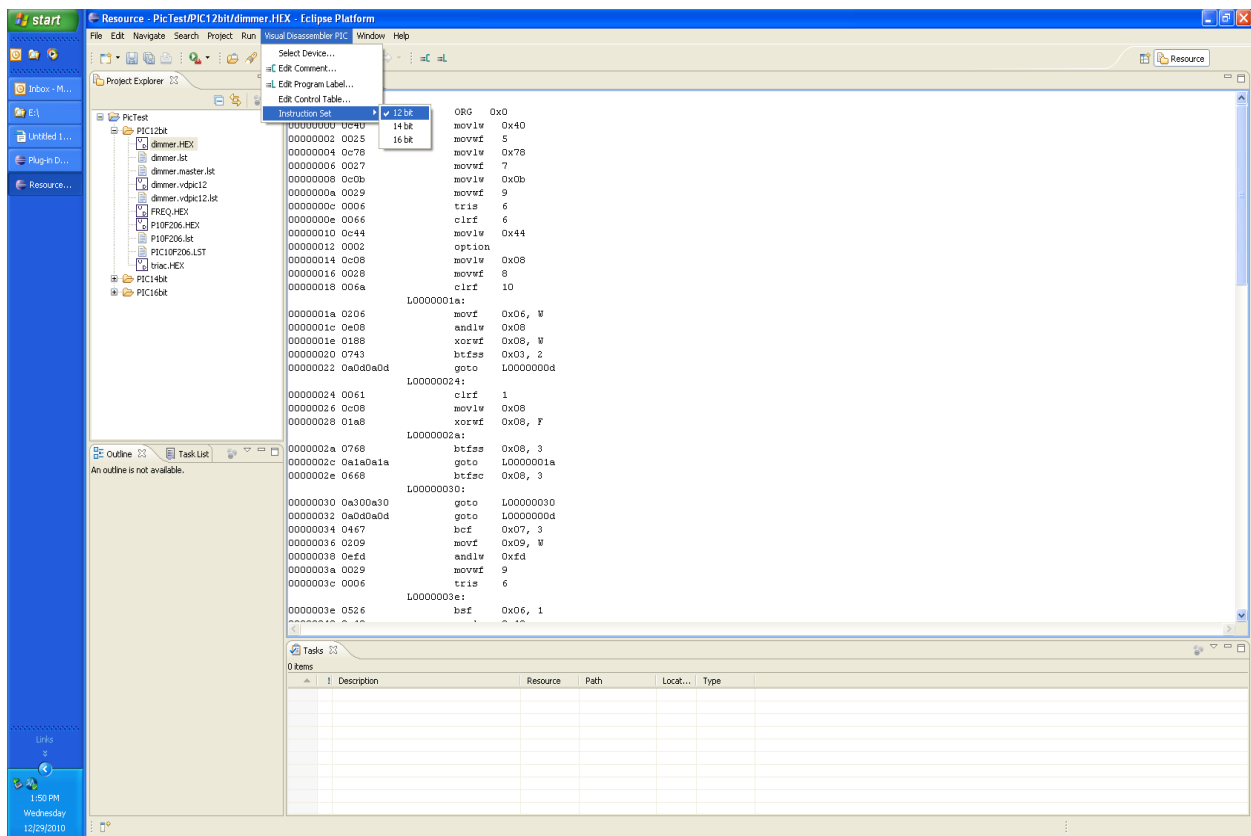
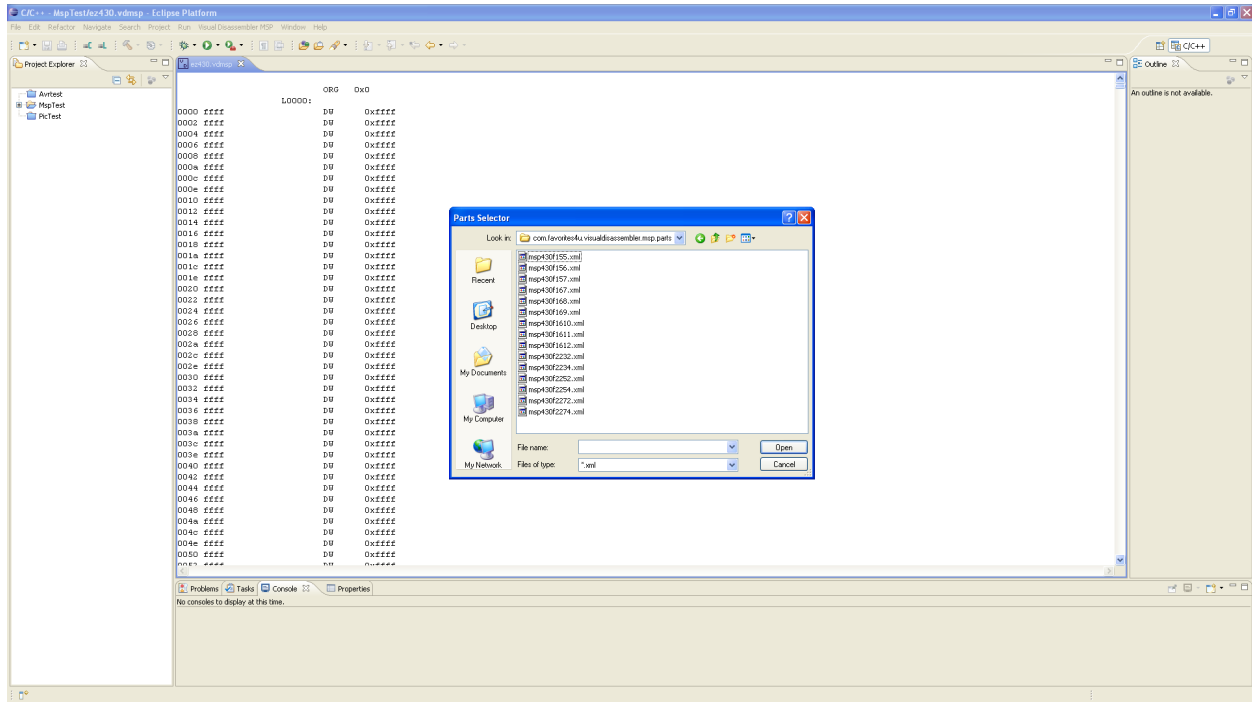


Figure 4

Menu Item – Select Device...

This menu item allows the user to select a specific device to use for the dis-assembly. It provides memory space, register, and ISR vector information to the disassembler.



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ToolBar Button View – Update Comment Tooltip

The Visual Disassembler Update Comment Button shown in figure 5 duplicates the menu item in the Visual Disassembler PIC / Update Comment... menu.

Update Comment - Allows the user to add comments at any location in the source file

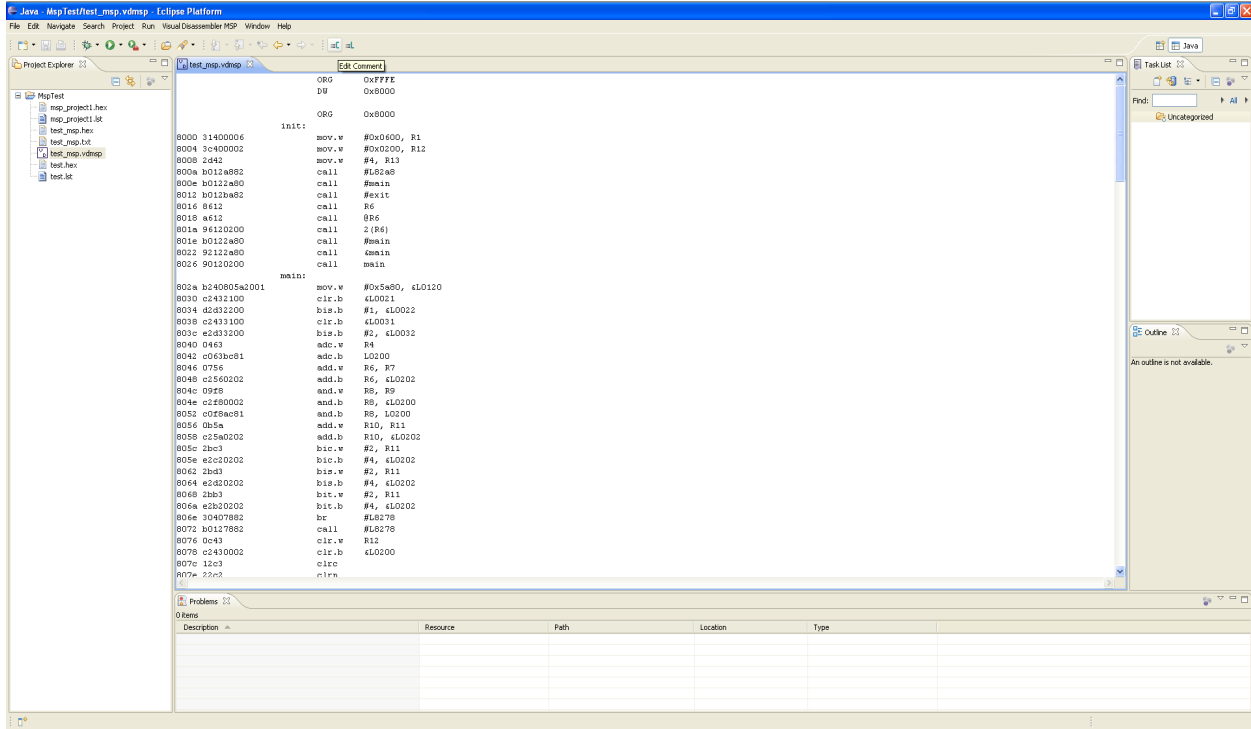


Figure 5

Dialog View – Update Comment

Figures 6 and 7 show the Visual Disassembler Update Comment dialog box. This dialog box allows entering a comment before or after any line in the source file

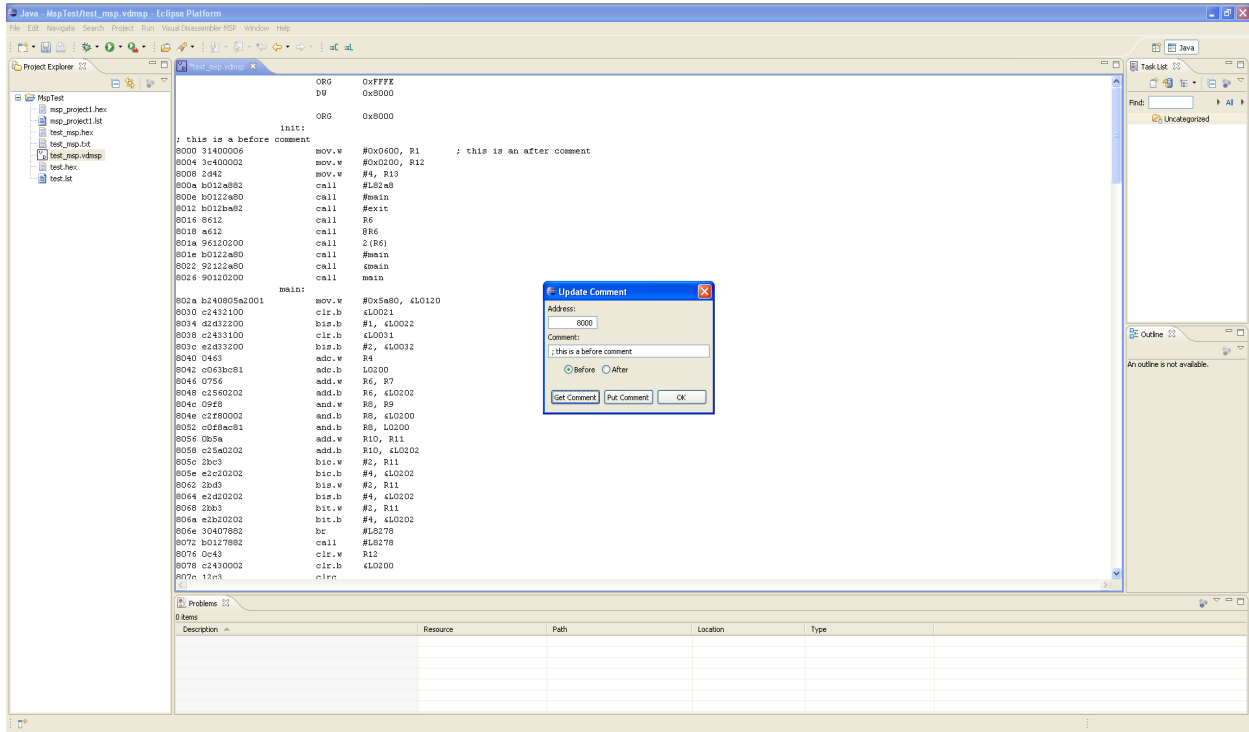


Figure 6

Visual Disassembler

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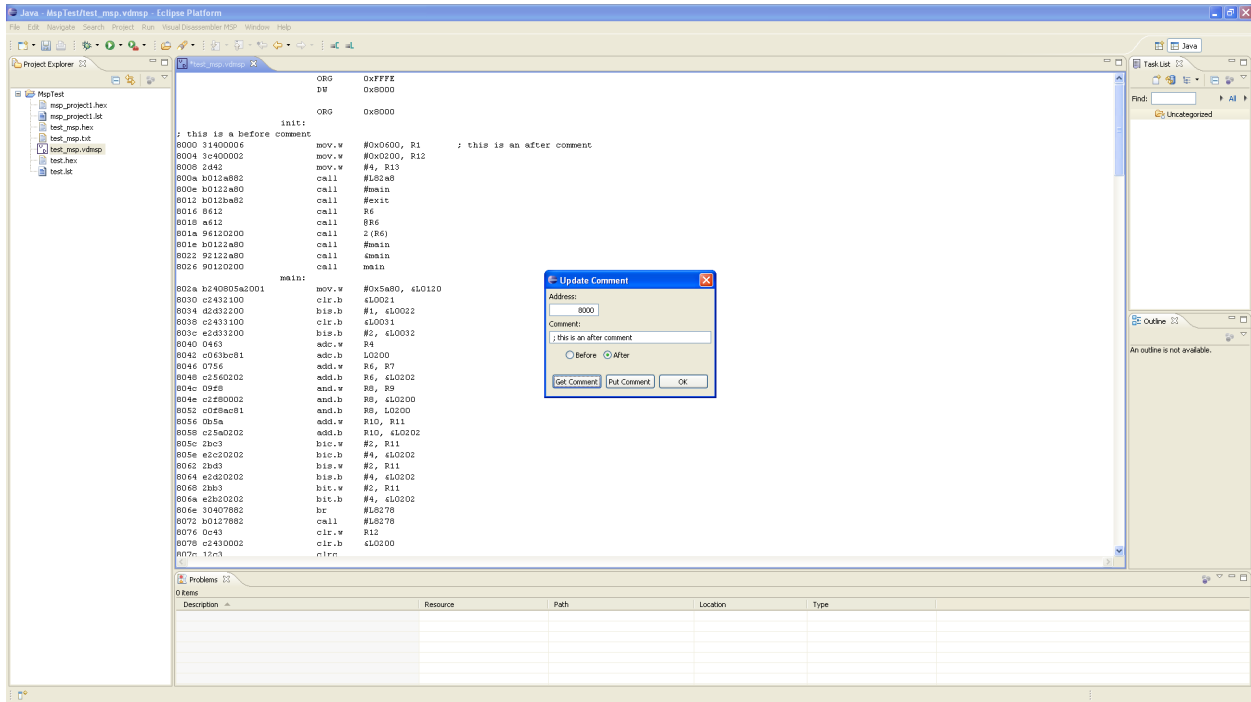


Figure 7

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ToolBar Button View – Edit Program Label Tooltip

Figure 8 shows the Visual Disassembler button item – Edit Program Label
This button duplicates the menu item Visual Disassembler PIC - Edit Program Label... menu item

Edit Program Label... Allows the user to add labels at any data/program location
(These labels are resolved on data access, branch and call instructions.)

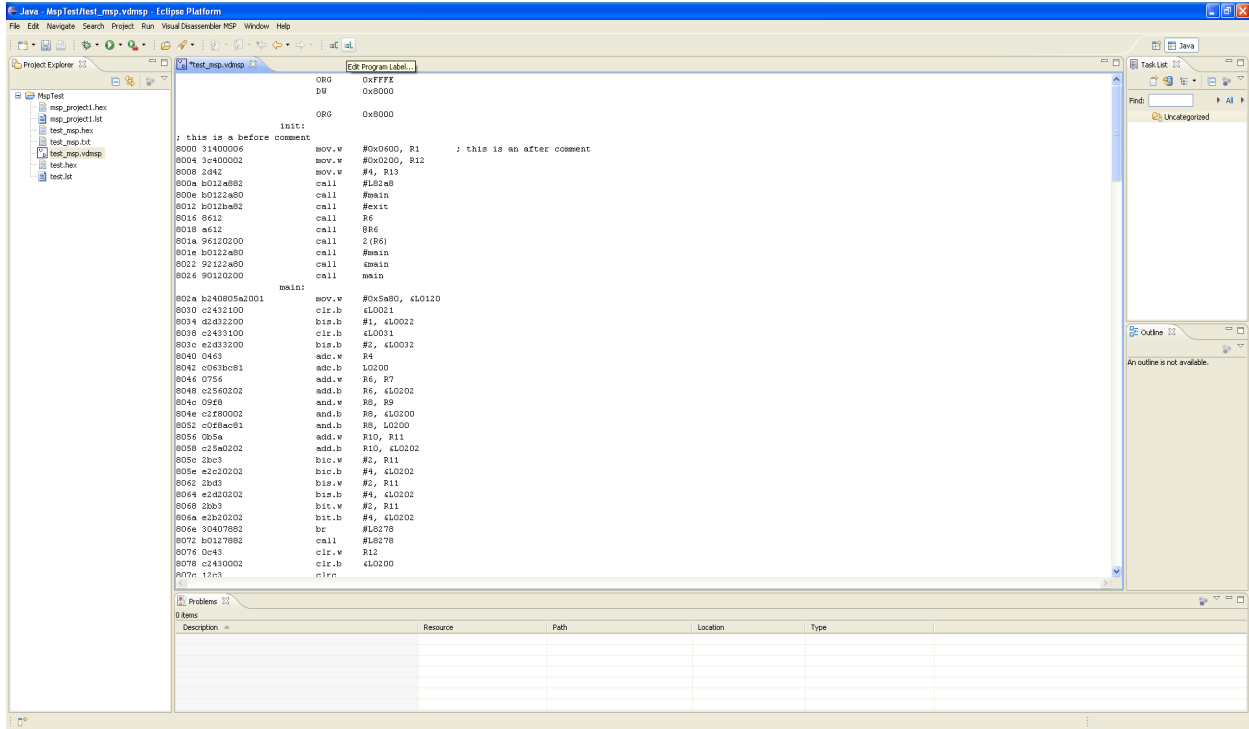


Figure 8

Menu Item – Edit Data/Program Label...

Figures 9 and 10 display the Visual Disassembler Edit Program Label dialog box.

Edit Program Label... Allows the user to add labels at any data/program location
(These labels are resolved on data access, branch and call instructions.)

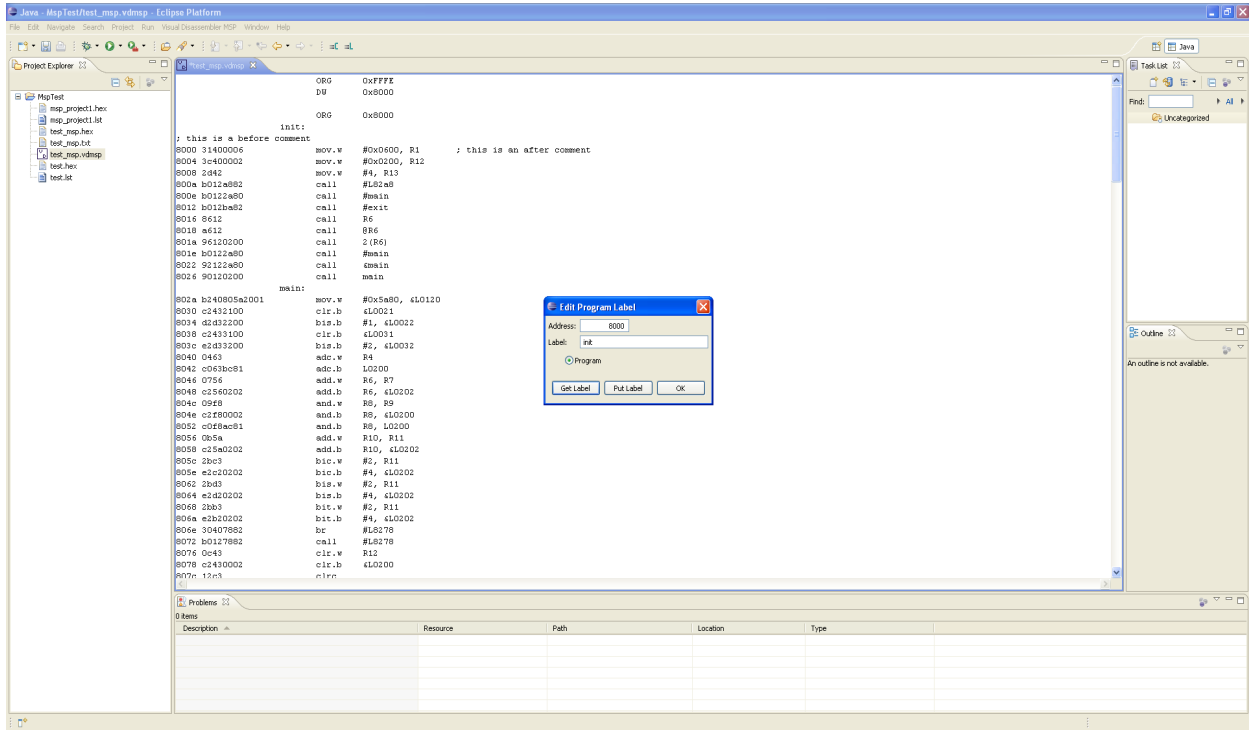


Figure 9

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Menu Item – Edit Control Table...

This menu item allows the user to modify the memory space parameters. The user can select between DATA and CODE space. A memory region specified as DATA space forces the disassembler to disassemble all opcodes as defined word (DW). The disassembler will disassemble all PIC opcodes in regions defined as CODE.

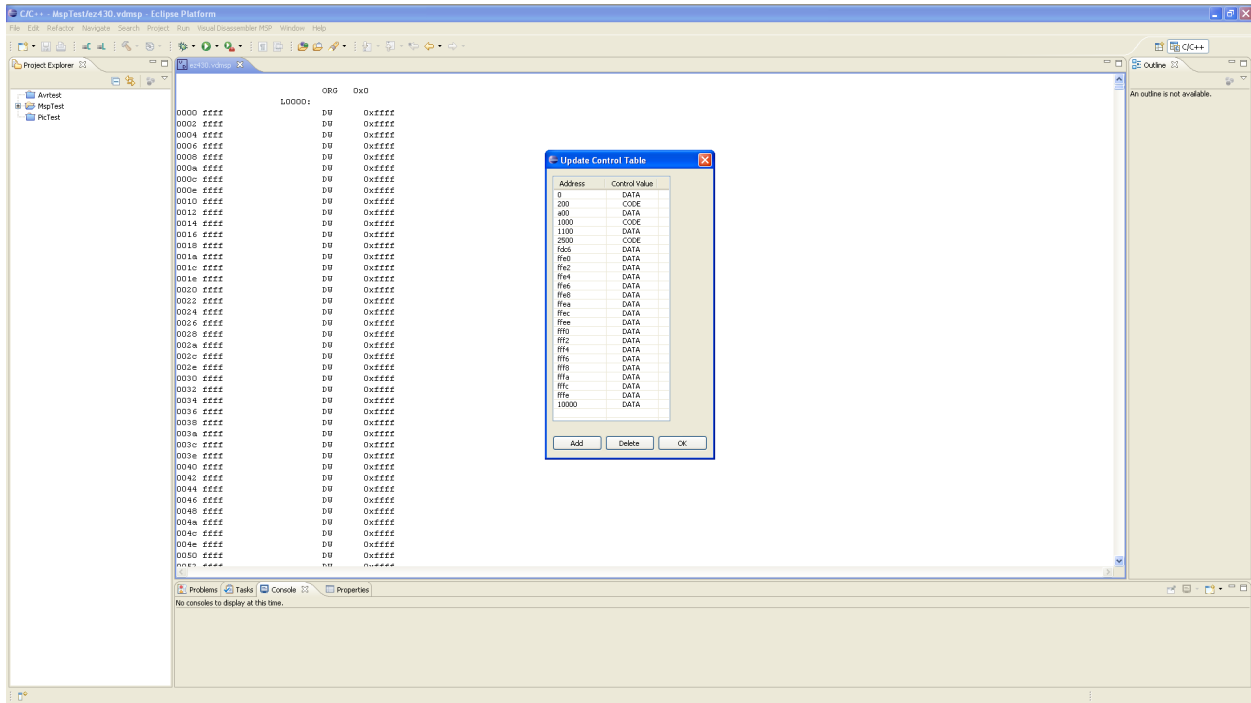


Figure 10

Visual Disassembler

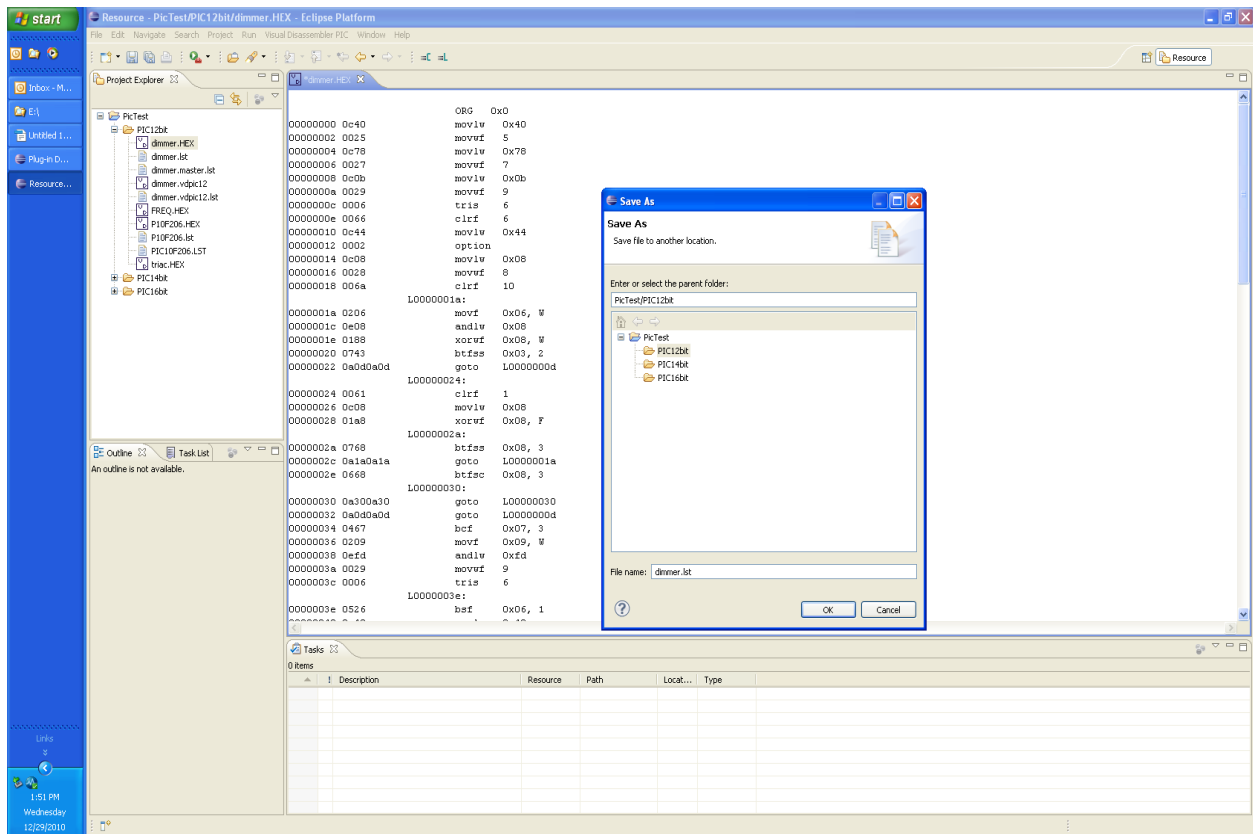
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Saving the Assembly Listing

Select menu item File/SaveAs... , change the file extension to .lst and click OK.

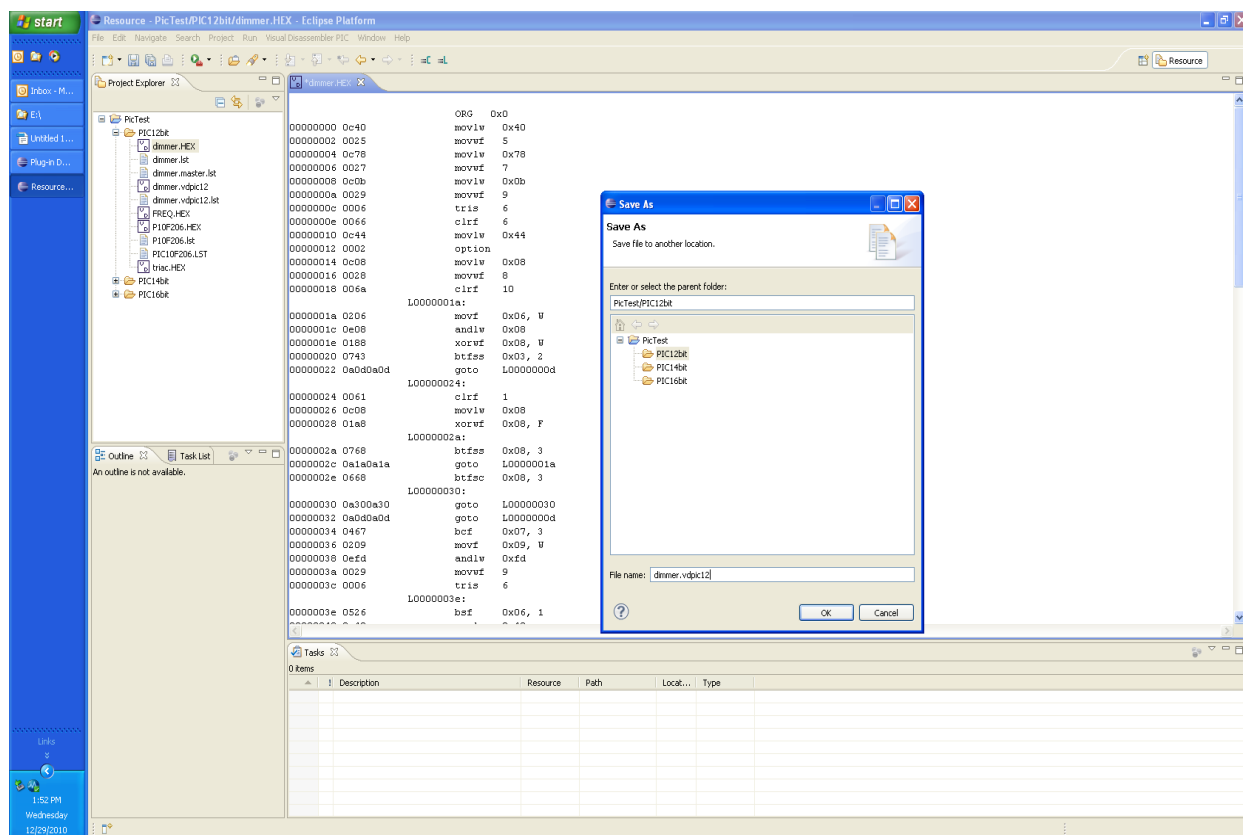
The project window on the left should update and show a new text file with the saved name. Editing the Assembly Listing may be required for the desired assembler.

Note: The address and opcode fields must be removed before it can be assembled.



Saving the Project File

Select menu item File/SaveAs... , change the file extension to vdpicxx where xx is the microprocessor word size and click OK. The project window on the left should update and show a new project file with the saved name. Double-click this file to resume editing.



Device Part Files

The device part files are located in the directory:

<plugins/com.favorites4u.visualdisassembler.parts/pic/>

These are XML files that describe the part memory space. To create a new part just copy one of the given parts and modify it.