

Visual Disassembler
for the
Texas Instruments
MSP430
Microprocessor Family

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Introduction

Visual Disassembler for the Texas Instruments © MSP430 is an interactive multi-pass disassembler for the MSP430 microprocessor family. 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 disassembly 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.

New features

- Added MSP430 part selection
 - resolves memory space, registers, and ISR vectors
- Added memory space control
 - Allows definition of data and code areas in the memory space

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

This can be bundled with the Visual Disassembler:

ECLIPSE CDT 3.4

<http://www.eclipse.org>

mspgcc-20080619.exe

<http://mspgcc.sourceforge.net>

Visual Disassembler Jar

com.favorites4u.visualdisassembler.msp_1.0.7.jar

Questions?

Contact us: webmaster@CreativeRealtimeHeuristics.org

Requirements

Visual Disassembler

The Visual Disassembler requires Eclipse version 3.4.x. and will run on both Windows and Linux platforms.

It must be installed in the eclipse/plugins directory.

Eclipse

Eclipse 3.4.x requires the Java Runtime Environment (JRE)6.

It can be obtained from <http://java.sun.com>.

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\Plug-in Details dialog box.

Quick Start

1. Open hex file
2. Select Device
3. Modify Control Table
4. Add comments
5. Add labels
6. Save as vdavr file
7. Repeat steps 3 through 6 until satisfied with disassembly
8. Save listing to text file

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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 - .vdmsp

An alternative extension is an Intel hex file - .hex

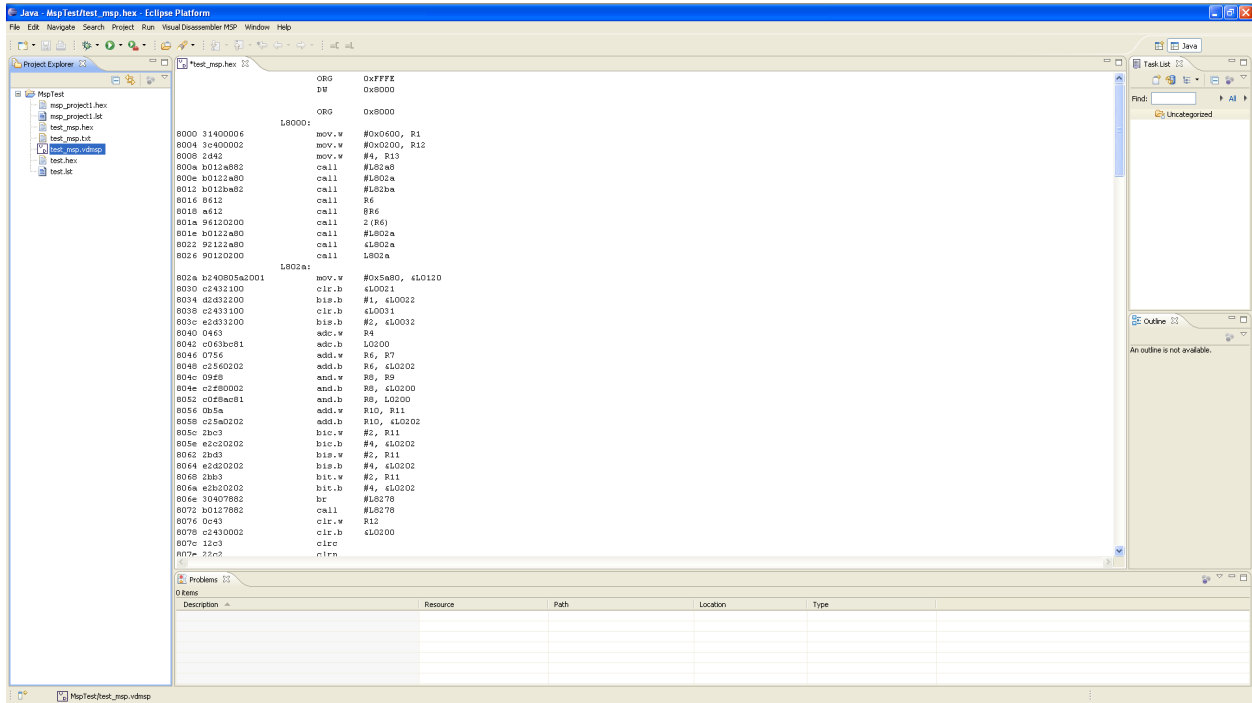


Figure 1

Open a File

Intel Hex File

Figure 2 shows the Open / Other... dialog box.

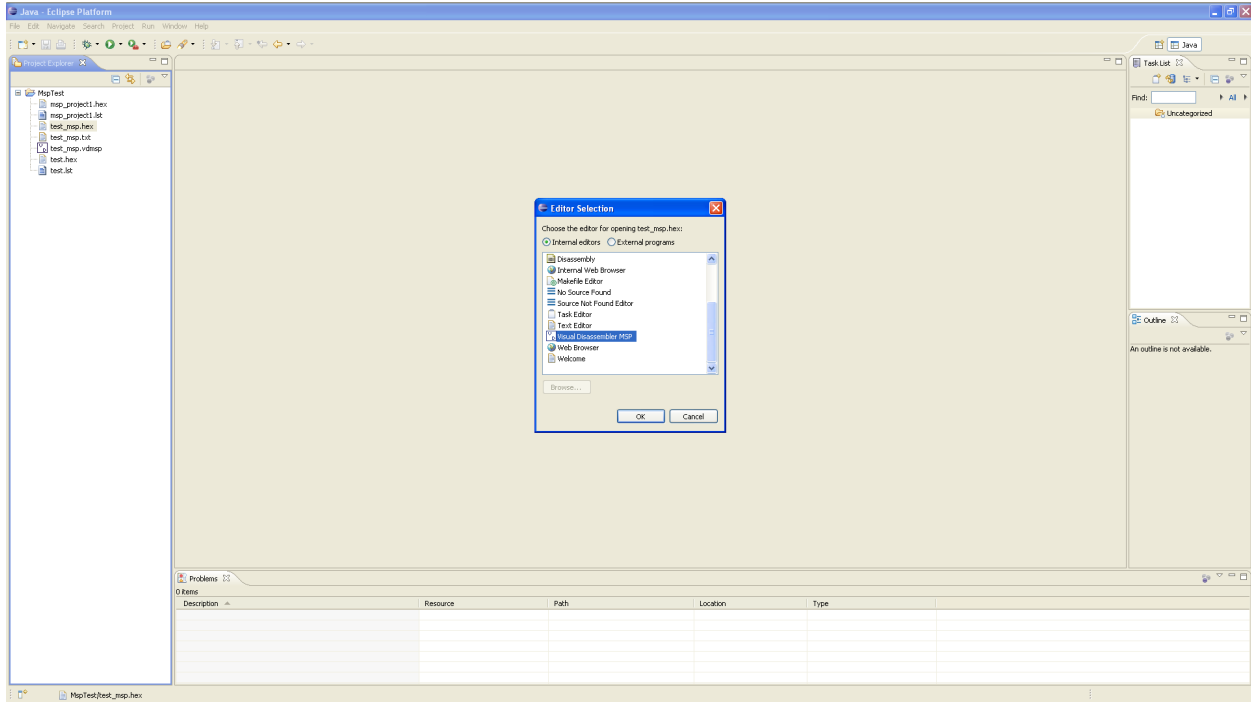


Figure 2

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VDMSP File – Default file format

The Open With dialog box is shown in figure 3.

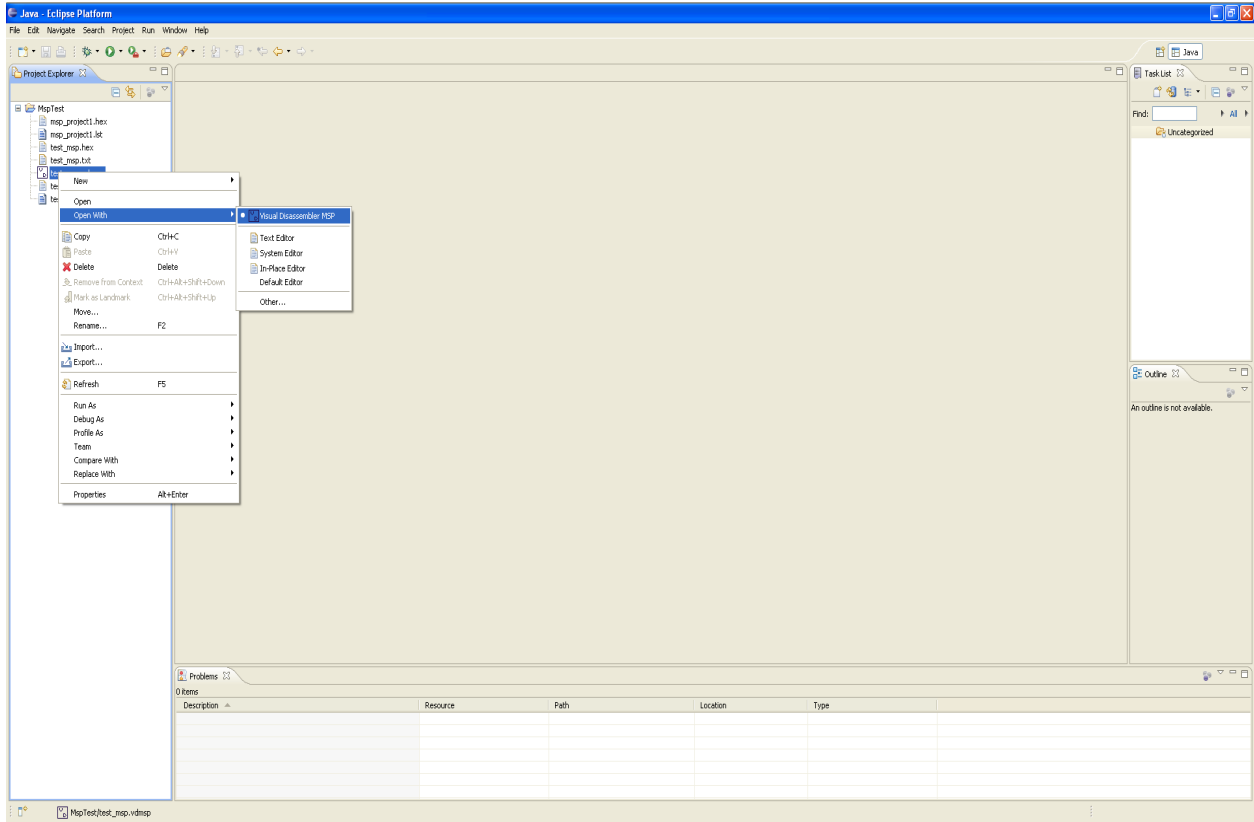


Figure 3

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Menu View

Figure 4 shows the Visual Disassembler MSP menu items.

- Select Device... Allows the user to select a MSP device file
(*resolves registers, vectors and memory space*)
- Edit Comment... Allows the user to add comments at any location in the source file
- Edit Data/Program Label... Allows the user to add labels at any data or 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

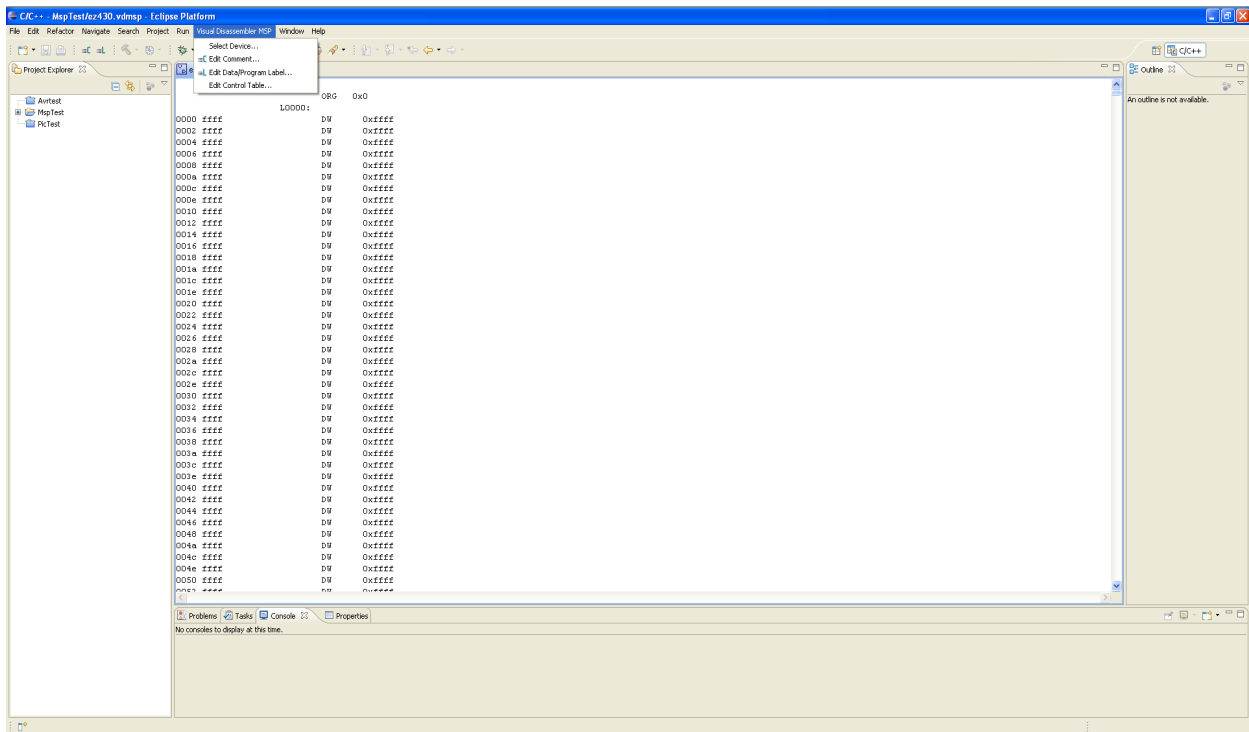
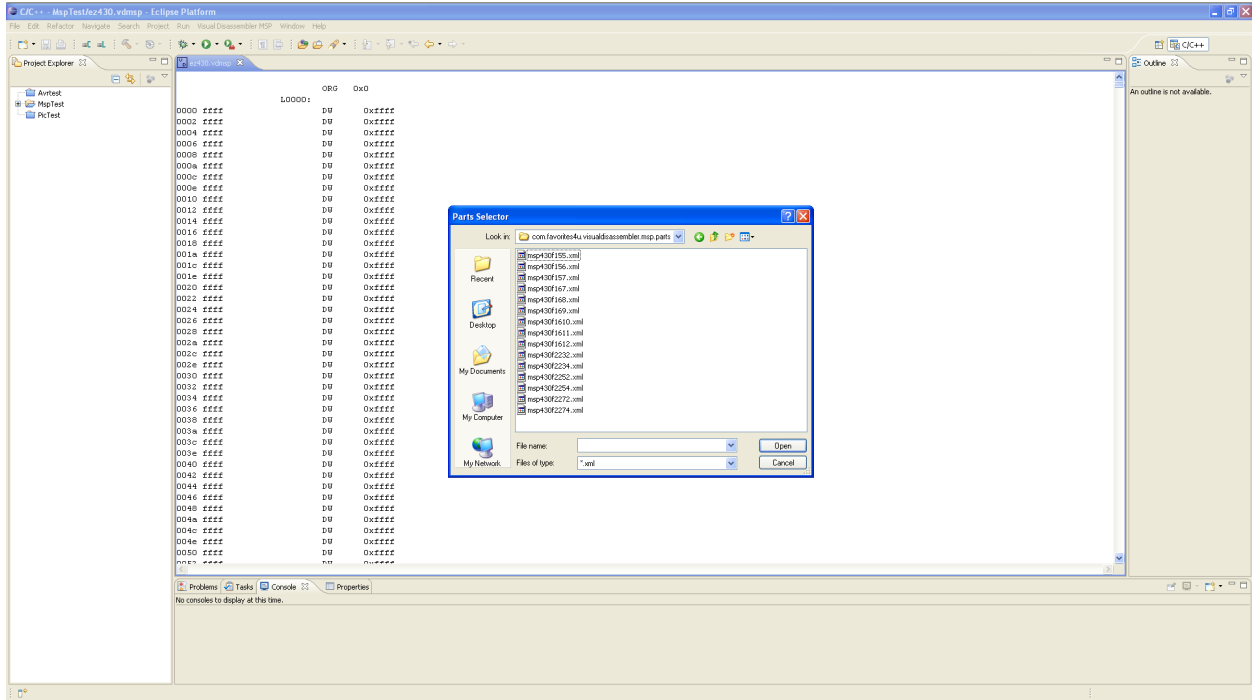


Figure 4

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Menu Item – Select Device...

This menu item allows the user to select a specific device to use for the disassembly. 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 MSP / Update Comment... menu.

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

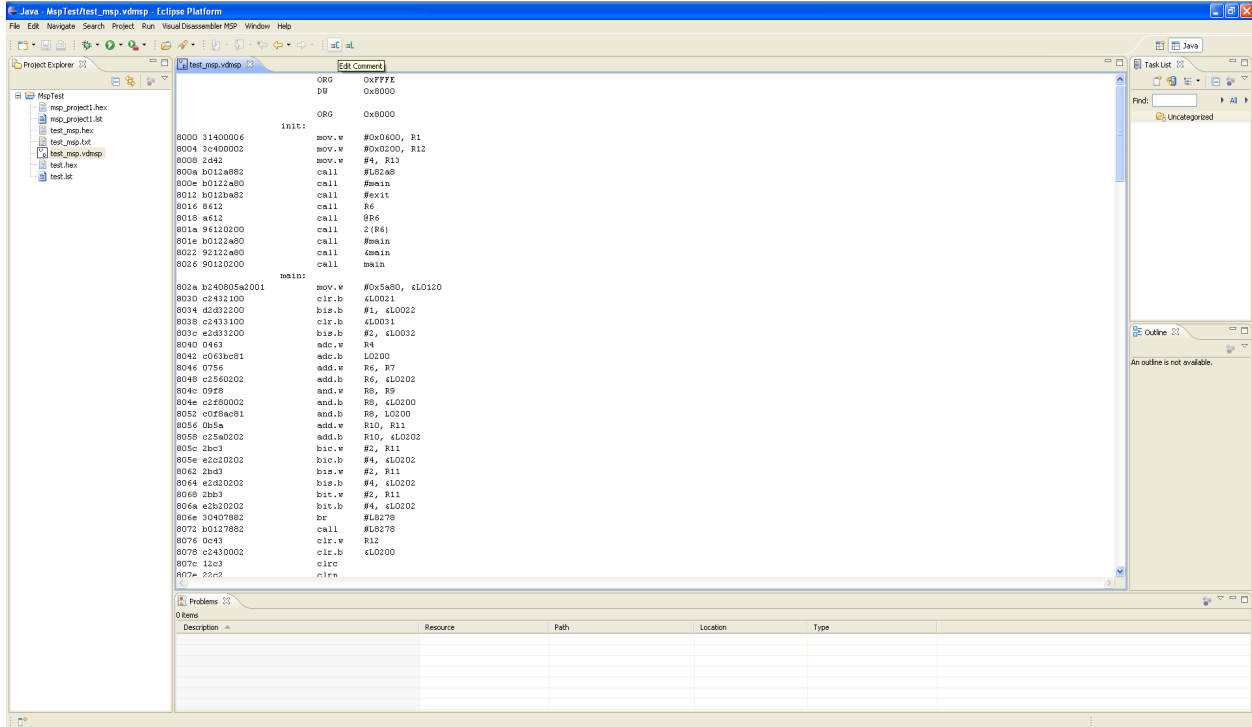


Figure 5

Menu Item – 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

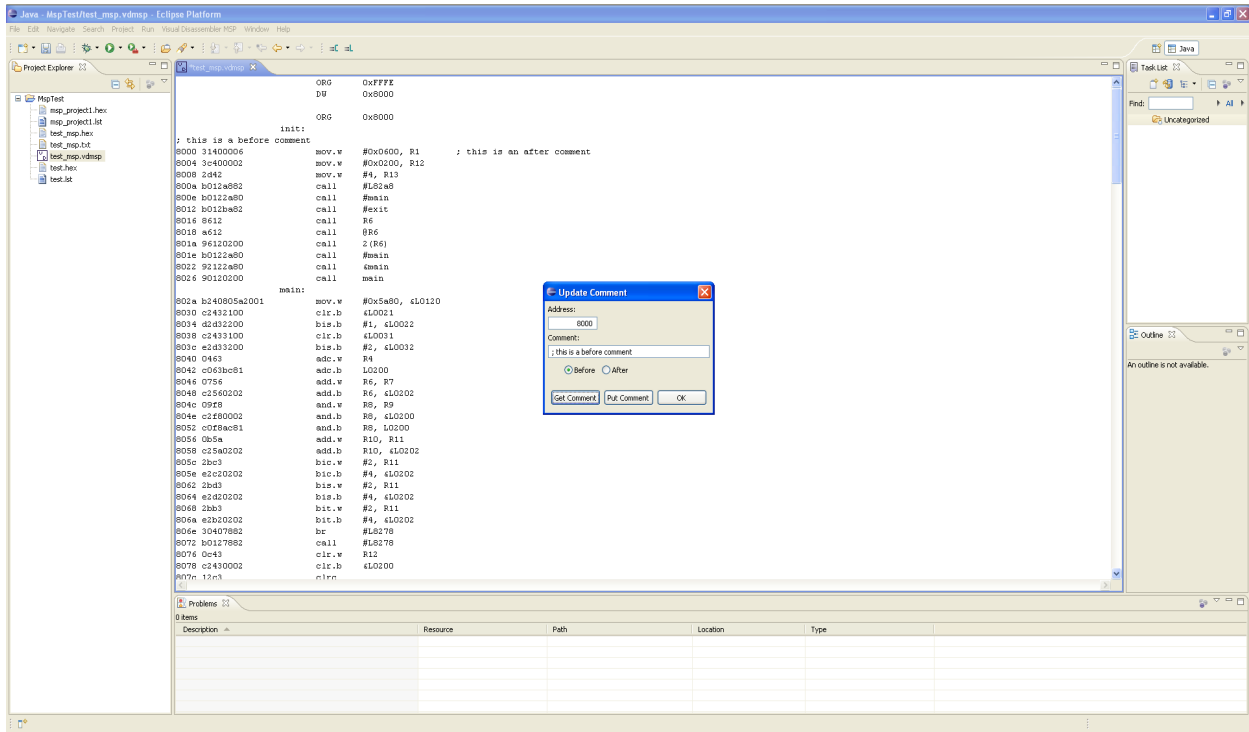


Figure 6

Visual Disassembler For the Texas Instruments © MSP430

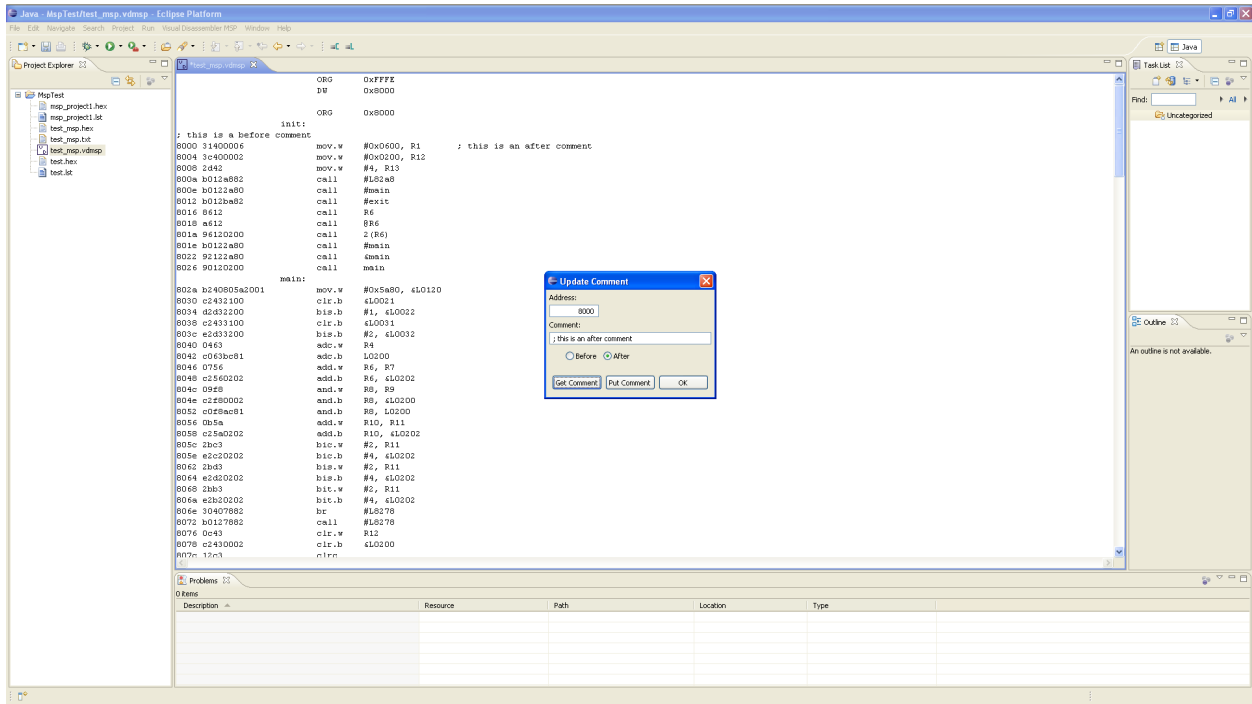


Figure 7

Visual Disassembler For the Texas Instruments © MSP430

ToolBar Button View – Edit Data/Program Label Tooltip

Figure 8 shows the Visual Disassembler button item – Edit Program Label

This button duplicates the menu item Visual Disassembler MSP - Edit Program Label... menu item

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

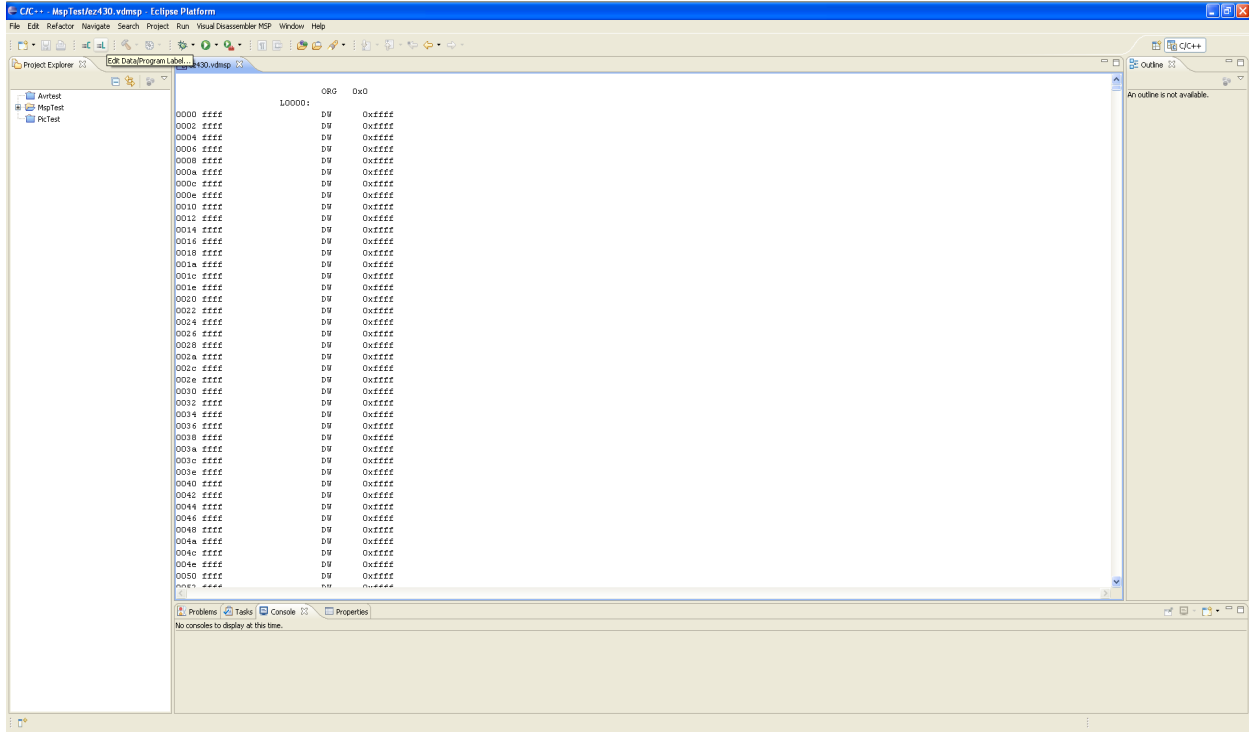


Figure 8

Visual Disassembler For the Texas Instruments © MSP430

Menu Item – Edit Data/Program Label...

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

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

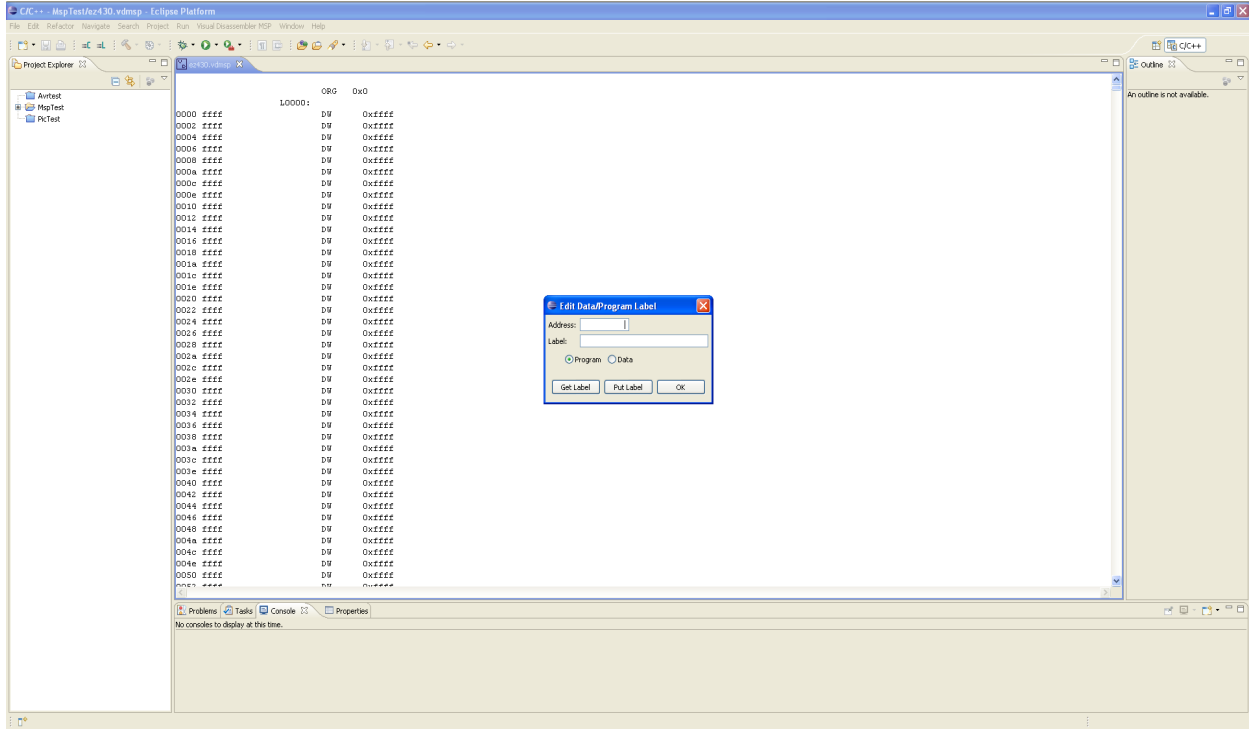
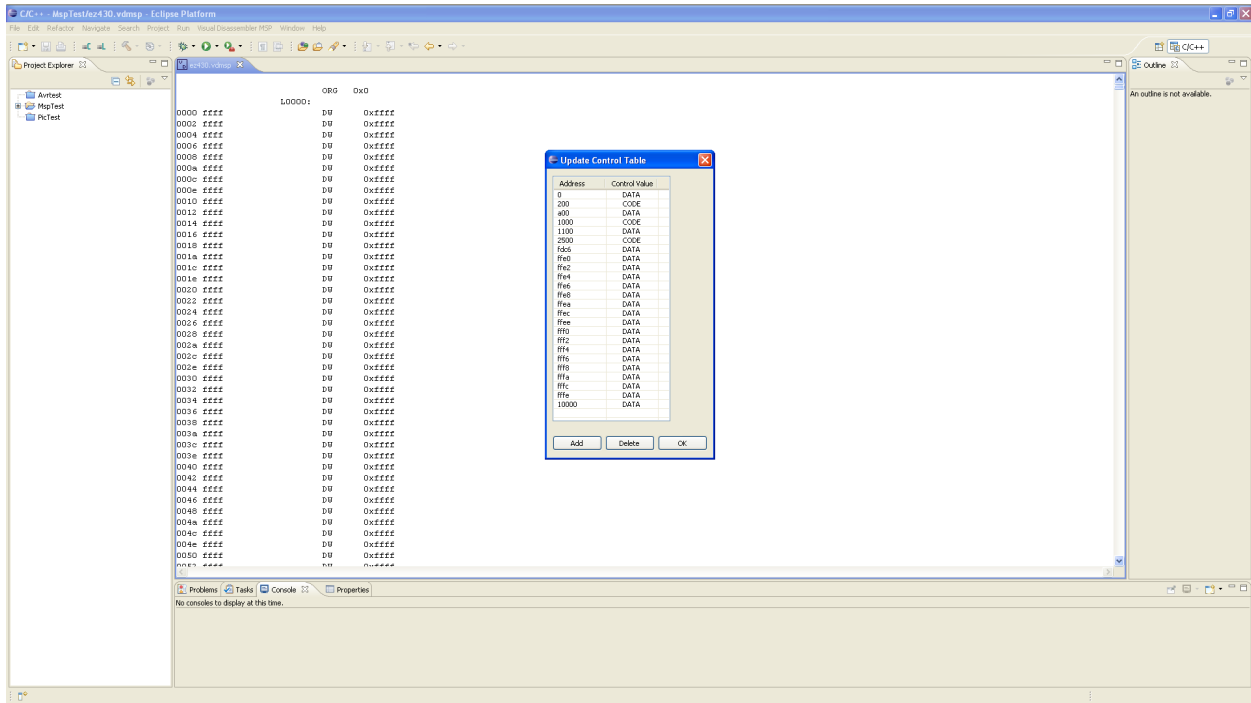


Figure 9

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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 MSP opcodes in regions defined as CODE.



Saving the Assembly Listing

Select all of the text in the Visual Disassembler text window (ctrl-A)

Copy all of the text in the Visual Disassembler text window (ctrl-C)

Open a text editor window

Paste the text from the Visual Disassembler text window into the text editor window.

Perform a Save-As and save the contents.

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.