1   Installing IMD

1.1   System Requirements

IMD is written in the IDL scientific programming language, and will run on any platform supported by IDL. Little or no IDL expertise is required to use IMD.

There are two ways to run IMD: (1) using a licensed copy of IDL, and (2) using the free XOP package, which includes an embedded, licensed copy of IDL.

1.1.1   Using IMD as an IDL application

IMD can be run using IDL version 6.3 or higher. IDL is available for purchase from Exelis Visual Information Solutions:

> http://www.exelisvis.com/ProductsServices/IDL.aspx

> **NOTE**: The full version of IDL is required to run IMD.

> **IMD will NOT run using the free IDL Virtual Machine.**

1.1.2   Using IMD as an XOP extension

IMD can be run as an 'extension' to the free XOP software package, available at ESRF:

> http://www.esrf.eu/Instrumentation/software/data-analysis/xop2.3

1.2   Installing IMD as an IDL application

If you will use IMD as an XOP extension, then you can skip this section and proceed to §1.3.

Once you have IDL installed and running on your computer, follow these steps to install and run IMD:

1. Create a directory (folder) called `user_contrib` in the main IDL installation directory.

    NOTE: You can install IMD in a different directory if you so choose. But if you do not install IMD in the `user_contrib` directory as described here, then you **must** edit the `imd_cfg.pro` configuration file to specify the actual installation location. See §1.4.1 for further details.

2. Download the IMD installation file `imd_xxx.tar.gz` from http://www.rxollc.com/idl/ (`xxx`=version number; for example, `imd_5.02.tar.gz`)
3. Unpack the `imd_xxx.tar.gz` file containing the `imd` installation directory.
    *   For Windows: use a program like Winzip to open `imd_xxx.tar.gz`
   *   For Linux/Mac OS X/Solaris: use the gunzip command:
        $ `gunzip imd_xxx.tar.gz`
        followed by the tar command:
        $ `tar –xvf imd_xxx.tar`
4. Move the `imd` installation directory to the `user_contrib` directory created in step 1. (i.e., to …`/idl/user_contrib/imd`)
5. Start IDL and add the new `user_contrib` directory just created in step 1 to your IDL search path. Consult the IDL documentation for help configuring the IDL_PATH environment variable. If setting IDL_PATH manually, be sure to include a "+" sign so that the subdirectories under `user_contrib` will be included (e.g., IDL_PATH=+/usr/local/rsi/idl/user_contrib:…) If you're using IDL's Preferences GUI to set the search path, be sure to check the 'search subdirectories' box:
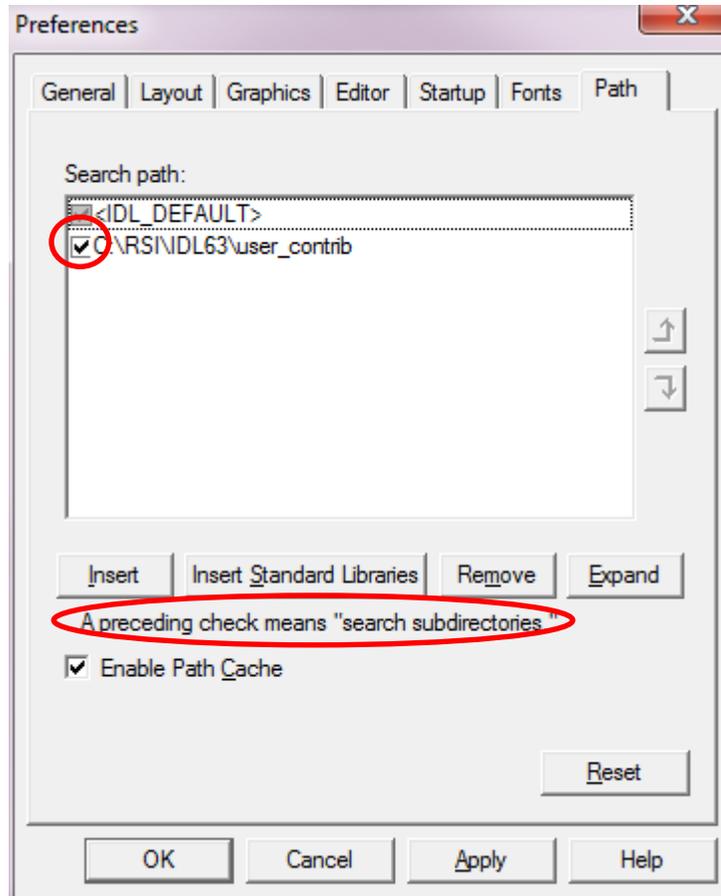
6. After your IDL search path has been redefined in step 5, type `.run imd` at the IDL prompt to start IMD:
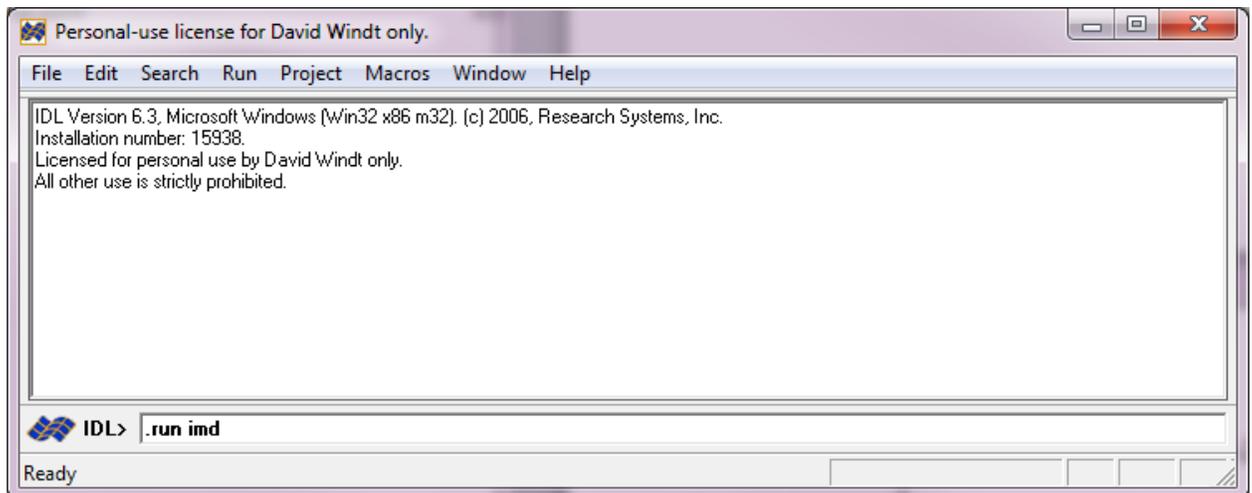
7. The IMD splash-screen will appear. Click 'OK' to start both IMD and IMD Launcher. From IMD Launcher you can re-run IMD, and run IMD*Multiplot and IMD*Efficiency as well:

8. You're up and running!

Now please read the rest of IMD.pdf (through Chapter 2, at the very least) so that you get the most out of IMD!

Also, check out the IMD & TOPO Google group (https://groups.google.com/forum/#!forum/imd_topo) for discussion, and announcements of future releases.

1.3   Installing IMD as an XOP extension

If you will NOT use IMD as an XOP extension, then you can skip this section and proceed to §1.4.

Once you have XOP installed and running on your computer, follow these steps to install and run IMD:

1. Download the IMD installation file `imd_xxx.tar.gz` from http://www.rxollc.com/idl/ (`xxx`=version number; for example, `imd_5.02.tar.gz`)
2. Unpack the `imd_xxx.tar.gz` file containing the `imd` installation directory.
   - For Windows: use a program like Winzip to open `imd_xxx.tar.gz`
   - For Linux/Mac OS X/Solaris: use the gunzip command:
     $ `gunzip imd_xxx.tar.gz`
     followed by the tar command:
     $ `tar –xvf imd_xxx.tar`
3. Move the `imd` installation directory to the `extensions` directory in the XOP installation directory (e.g., to …`/xop2.3/extensions/imd`).
4. *For Windows only:*
   - copy the file `C:\xop2.3\extensions\imd\extras\imd4xop.bat`
           to `C:\xop2.3\imd4xop.bat`
     and
   - copy the file `C:\xop2.3\extensions\imd\extras\imd4xop.vbs`
   to `C:\xop2.3\imd4xop.vbs`

   The name of the XOP installation directory depends on the version of XOP that you have installed, and on where you have installed it on your computer. For this step we've assumed that XOP V2.3 is installed in the default location `C:\xop2.3`*. However, if you have a different version of XOP, or a different installation location, please substitute the correct name and path for your XOP installation directory above.*

   Note*: if you don't use the default installation location (*`C:\xop2.3`*), you MUST edit* `imd4xop.bat` *and specify the correct path to* `xop.bat`*.*

   You might also want to make a shortcut on your Desktop to one or both of these files, so you can start IMD by double-clicking that shortcut. Use `imd4xop.vbs` *if it works on your system, otherwise use `imd4xop.bat`.*
5. Start IMD:
   - For Windows: Double-click on `imd4xop.vbs` (or `imd4xop.bat` if necessary.) Or, start XOP and then use the XOP→Load extension… menu option to select imd4xop.
   - For Linux/Mac OS X/Solaris: At the command line, type: `xop imd4xop`

6. The IMD splash-screen will appear. Click 'OK' to start both IMD and IMD Launcher. From IMD Launcher you can re-run IMD, and run IMD*Multiplot and IMD*Efficiency as well.
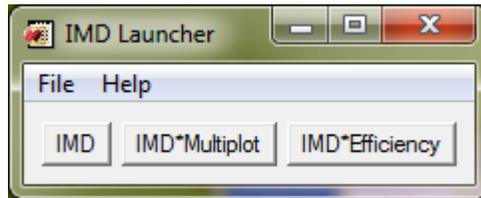
7. You're up and running!

Now please read the rest of IMD.pdf (through Chapter 2, at the very least) so that you get the most out of IMD!

Also, check out the IMD & TOPO Google group (https://groups.google.com/forum/#!forum/imd_topo) for discussion, and announcements of future releases.

1.4   Customizing the IMD installation: `imd_cfg.pro`

1.4.1   Non-standard installation location

If you will use IMD with a licensed copy of IDL, and you choose not to install the `imd` installation directory in the default location, i.e., the `user_contrib` directory in the main IDL directory as described in §1.2, then you **must** edit the IMD configuration file `imd_cfg.pro`, which is located in the `imd` installation directory you have selected: specifically, using any plain-text editor, change the value of the `imd_home` variable defined in this file so that it refers to the actual location where you've installed the `imd` directory on your computer.

EXAMPLE: You are using a linux system and you have installed IMD in your home directory, e.g., `/users/joe/imd.`

Edit `imd_cfg.pro` and replace the line

```
if (!version.os_family eq 'unix') then imd_home=!dir+'/user_contrib/imd/'
```

with

```
if (!version.os_family eq 'unix') then imd_home='/users/joe/imd/'
```

1.4.2   Other customizable settings

There are several other operating-system- and site-specific settings that you can modify in the `imd_cfg.pro` configuration file, including those that control the fonts and special characters used by the IMD graphical user interface (GUI), default atomic scattering factors and optical constants directories, and allocation of memory when computing large arrays, to avoid IDL 'out of memory' errors. Please follow the instructions contained within the `imd_cfg.pro` file to make such modifications.

If you are using IMD on a unix platform, you can also use the `Xdefaults` configuration file included in the `imd/extras` directory to set some IMD-specific X-windows preferences. One method to do this is to copy the contents of `imd/extras/Xdefaults` into your personal .Xdefaults file, or into the IDL Xdefaults file, `!dir/resource/X11/lib/X11/app-defaults/Idl`, where `!dir` is the IDL installation directory on your computer.

1.5   Common Installation Problems and Solutions

Problem: IDL can't find IMD:

```
IDL> .run imd
Error opening file. File: imd
```

Solution: You must add the IMD installation directory to your IDL search path, as described in §1.2.

Problem: You see errors like these:

"There are no valid optical constants files…"
"There specified atomic scattering factors directory – xxxx – does not contain any '.ff' files…"
"imd_cfg.pro" is invalid. Please correct the contents of this file."

Solution: You must edit the `imd_cfg.pro` configuration file, as described in §1.4. [i]

Problem: The IMD windows don't look right, and/or don't look much like the examples in this document.

Solution: The fonts used by IMD, which are specified in the `imd_cfg.pro` configuration file, might not be available on your computer. Edit the `imd_cfg.pro` file, as described in §1.4, and specify valid fonts that are actually installed on your computer.[i]

Problem: Special characters, such as 'Å', 'μ', 'δ', etc., don't display correctly in the IMD windows.

Solution: The special character codes for your particular installation, which are specified in the `imd_cfg.pro` configuration file, must be the correct codes for the fonts used by IMD, which are also specified in that file. Edit the `imd_cfg.pro` file, as described in §1.4, and specify valid special character codes for the fonts that you have specified.[i]

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[i] If your operating system is not specifically listed in the `imd_cfg.pro` configuration file, you'll need to manually add the necessary entries for optical constants and atomic scattering factors directories, fonts, etc, using as a template the lines in that file that contain "YOUR OS": replace "YOUR OS" with the value of the IDL system variable !version.os as defined on your computer.