

MathPalette™

MathPalette was written by Objective Technologies, Inc. Objective Technologies was the first company to develop commercially-available custom object palettes for the NeXT. They are one of the premier developers of NeXT software. They can be contacted at:

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In the Spring 1991 issue, NeXT on Campus reviewed the alternatives available for creating front-ends for *Mathematica*® and concluded, "Of all the options for connecting to *Mathematica*, Objective Technologies, Inc. provides the simplest solution with a product called MathPalette ."

MathPalette is a loadable module for the NeXT computer from Objective Technologies. It provides tools for developing applications that communicate with *Mathematica*. MathPalette allows you to separate the functionality of your application from the implementation of underlying mathematical models. The power of MathPalette promotes rapid development of applications that communicate with

Mathematica.

MathPalette consists of four objects: OTProcessor, OTAssignField, OTPSView and OTMathView. You can drag any of these objects into your application just like a button or text field. You can also access them directly from Objective-C®.

. The OTProcessor object is the central processor for information passed to and from *Mathematica*. It manages command buffers and directs the commands to the *Mathematica* kernel. You can load the commands into the OTProcessor's buffer with a mouse click or with the target/action paradigm. OTProcessor also manages results from the kernel (which can be PostScript commands, mathematical expressions, or numeric values) and can forward these results to other objects.

- The OTAssignField object is used to associate variables with assignment values. You can configure it to notify the user about the processing status of the expression.
- OTPSView and OTMathView are the PostScript command processing objects. They process the PostScript commands and display the image.

The release version of MathPalette runs under the 2.0 version of NeXTSTEP. A beta version of the software that operates with NeXTSTEP 3.0 is available on this CD-Rom. A release version of the software that runs with the 3.0 operating system will be available to everyone shortly after NeXT releases the 3.0 operating system. This

will be distributed free of charge to all customers who own the version compatible with the 2.0 operating system.

Detailed documentation is included with the software.

Price: MathPalette single license and software: \$ 769

Purchasing a single license allows up to five machines to share MathPalette over a network. There are no run-time fees for applications developed using these objects. Educational institutions receive a 50% discount. Contact Objective Technologies, Inc. for site license information.

For additional information on this or any of the other products produced by OTI,
phone 1-800-3OBJECT, send e-mail to: info_palettes@object.com, or write to:

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Installation Directions

MathPalette 2.2 assumes you are using a *Mathematica* labeled version 2.0 or above.

MathPalette consists of a loadable Interface Builder palette (Math.palette), a library containing the compiled MathPalette objects (libMath.a), interface (".h") files describing the palette's objects, and documentation describing the objects and how they are used. By default, the Installer application installs these files as follows:

| <u>File Type</u> | <u>Directory</u> | <u>Sub-Directories Installed</u> |
|------------------|------------------|----------------------------------|
| Palette | /LocalPalettes | |
| Library | /usr/lib | |

Interface Files /usr/include otikit

Documentation /LocalLibrary/Documentation OTI/MathPalette

This version of the MathPalette supports *Mathematica* versions above 2.0 only.

Before installing MathPalette

The MathPalette communicates with *Mathematica* by starting a *Mathematica* kernel which in turn, is started by an executable shell script named "math". This file must be in the /usr/bin directory for MathPalette to operate. Before you install MathPalette check the /usr/bin directory to see if the "math" script is in the directory. If it is, go to the install procedure. If it is not, the script needs to be copied to /usr/bin directory.

By default, version 2.0 places the math script in `/usr/bin` correctly using the standard installation defaults. If, when installing *Mathematica* 2.0, you did not follow all the default installation procedures, it is possible that the math script is elsewhere. Locate the math file and drag it into the `/usr/bin` directory.

The MathPalette distribution consists of four ".pkg" (Package) files: MathPalette.pkg, MathDoc.pkg, MathHeaders.pkg and MathLib.pkg. Each file contains a different part of the Math palette; the palette file itself, the documentation, the header files and the library, respectively. Installing the MathPalette consists of opening each of the ".pkg" files and installing each of them in turn.

By following the steps below, you will install the MathPalette in the standard locations

listed above. If, for some reason, you wish to place the MathPalette files elsewhere, NeXT's Installer application will allow you to change the directory you wish to install files into.

- Login to your computer as "root". If you do not have access to "root", then your system administrator must install the palette.
- If this is the first Objective Technologies palette you are installing, you will need to create the /LocalPalettes directory. The script will work even if /LocalPalettes already exists on your disk.
- Double click on the file named "MathPalette.pkg"; this is the palette's package

file. It will launch the Installer application.

- When the Installer application's window appears, click the Install button in the upper left-hand corner of the window.
- A panel will appear asking you if you wish to continue with the installation of the palette into the `"/LocalPalettes"` directory. Click on "Install".
- The Installer application will notify you when the installation is complete. Once it is complete, repeat the last four steps with each of the `MathHeaders.pkg`, `MathLib.pkg` and `MathDoc.pkg` packages.

After the installation is complete the MathPalette library, libMath.a, must be updated in order to link the MathPalette objects. The following steps will update your installed library:

- Double click on "UpdateLibrary" file which you will find in /LocalLibrary/Documentation/OTI/MathPalette.

Using MathPalette

All documentation on the MathPalette was installed, by default, in the directory /LocalLibrary/Documentation. Under this location a sub-directory named OTI was created to contain documentation for any and all palettes provided by Objective Technologies, Inc. Within the OTI directory, the documentation for this palette was installed inside a directory named MathPalette.

You may now use MathPalette. A tutorial which describes how to use the MathPalette objects is provided with the MathPalette. The tutorial is called UsingMathPalette.rtf and is in the directory OT_Support located within the MathPalette documentation directory.

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