Rebuilding UIM/X

There are three directories from which the UIM/X executable can be rebuilt: $UIMXDIR/custom/src, $UIMXDIR/build/src, and $UIMXDIR/config. This document provides step by step instructions on how to rebuild the UIM/X executable from each of these directories.

$UIMXDIR/custom/src

You should use the Makefile in $UIMXDIR/custom/src when you want to do one of the following:
- Make the library libuxcustom.a. This library must be rebuilt when:
  - Copies of the source files in the directory $UIMXDIR/custom/src are modified. These files may be modified to reconfigure UIM/X. For example, to change UIM/X's Create menu, code would be added to cr-menus.c.
  - A new widget class is being integrated with UIM/X.
- Make a new UIM/X executable if:
  - $UIMXDIR/custom/src/uimx_main.c needs to be modified.
  - A new version of libuxcustom.a needs to be linked into the UIM/X executable.
- Make an extended version of the uxcgen utility. Uxcgen needs to be extended when a new widget is added to UIM/X so that code may be generated for this new widget. The files user-cg-cl.c and user-xtype.c are provided for this purpose.
- Make an extended version of the uxreaduil utility. This utility must also be updated to support added widget classes.
- Make a new version of libuimx.a (or libux.a for UIM/X 2.9 and higher), the Ux Convenience Library. This library must be rebuilt to support new widget classes that have resources that require run-time conversion.

To rebuild UIM/X in the $UIMXDIR/custom/src directory, follow these steps:
1) Create a local working directory.
2) Copy $UIMXDIR/custom/src/Makefile to your working directory.
3) Copy $UIMXDIR/custom/src/uimx_main.c to your working directory.
4) Copy any source files in $UIMXDIR/custom/src that need to be modified into your working directory. Edit these files as required.
5) If you are integrating a new widget class, copy the .c and .h files for the new widget and swidget classes to your working directory. Modify the makefile macros WIDGET_OFILES and SWIDGET_OFILES to list the object files for the new widget and swidget classes. List the object files in the following format:
```
        WIDGET_OFILES=\
            $(LIBCUSTOM)(Dog.o)
        SWIDGET_OFILES=\
            $(LIBCUSTOM)(dog.cl.o)
```
6) Copy the libraries libuxcustom.a and libuimx.a to your working directory from $UIMXDIR/lib. Note that the makefile already refers to the local copies of these libraries
7) Touch all of the .c files to insure that the libraries will be rebuilt.
8) Execute 'make all'.

9) Backup $UIMXDIR/bin/uimx to $UIMXDIR/bin/uimx.orig.
10) Copy the rebuilt uimx executable from your working directory to $UIMXDIR/bin/uimx.

$UIMXDIR/build/src

You should use the Makefile in $UIMXDIR/build/src when you want to do one of the following:
- Make the library libuxbuild.a. This library must be rebuilt when you modify copies of the files in $UIMXDIR/build/src or $UIMXDIR/build/include. The files in these directories control the interfaces and widget classes that are linked into the UIM/X executable.
- Make a new UIM/X executable. Do this when:
  o $UIMXDIR/build/src/uimx_main.c is modified.
  o A new version of libuxbuild.a needs to be relinked into the UIM/X executable.

To rebuild UIM/X in the $UIMXDIR/custom/src directory, follow these steps:
1) Create a local working directory.
2) Copy $UIMXDIR/build/src/Makefile to your working directory.
3) Copy $UIMXDIR/build/src/uimx_main.c to your working directory.
4) Copy any source files in $UIMXDIR/build/src that need to be modified into your working directory. In addition, copy the corresponding header files for these source files from $UIMXDIR/build/include into your working directory. Edit these files as required.
5) Copy the library libuxbuild.a to your working directory from $UIMXDIR/lib. Note that the makefile already refers to the local copies of these libraries.
6) Touch all of the .c files to insure that the libraries will be rebuilt.
7) Execute 'make all'.
8) Backup $UIMXDIR/bin/uimx to $UIMXDIR/bin/uimx.orig.
9) Copy the rebuilt uimx executable from your working directory to $UIMXDIR/bin/uimx.

$UIMXDIR/config

You should use the Makefile in $UIMXDIR/config when you want to link custom object code into the UIM/X executable. This process is called augmenting UIM/X. Augmenting UIM/X via the $UIMXDIR/config directory allows you to do the following:
- Relink UIM/X against the X11 and Motif resident on the host machine.
- Link in components distributed in object form.
- Link completed interfaces into the development environment.
- Use a compiled interface as a specialized widget editor within UIM/X.

To rebuild UIM/X in the $UIMXDIR/custom/src directory, follow these steps:
1) Create a local working directory.
2) Copy $UIMXDIR/config/Makefile.uimx to the file Makefile in your working directory.
3) Copy $UIMXDIR/build/src/uimx_main.c to your working directory. Insert any desired initialization code where directed by the comments in uimx_main.c.
4) Copy the source (or object) files you want to link with UIM/X into your working directory.

If you want to relink UIM/X against a version of X11 or Motif that is resident on your machine, do steps 5 - 7. Otherwise, skip to step 8.
5) Copy the file $UIMXDIR/mkinclude/central.mk to your working directory.
6) Edit Makefile by changing the line (which is of the form):
   include <UIMXDIR>/mkinclude/central.mk
   TO:
   include ./central.mk
7) Edit central.mk by editing the necessary macros to reflect the location of the X/Motif libraries and header files on your system (X_LIBPATH, MOTIF_LIBPATH, X_CFLAGS and MOTIF_CFLAGS).
8) If you want to make an interface into an editor in UIM/X, compile the interface's generated code with the flag:
   -DUIMX_INTERNAL
   Add this flag to the EXTRACFLAGS macro in central.mk.
9) Touch .c files in your working directory to force a complete rebuild.
10) Execute:
    make <target>
    where <target> is the value of the AUGEXEC macro in Makefile.
11) Backup $UIMXDIR/bin/uimx to $UIMXDIR/bin/uimx.orig.
12) Copy the rebuilt uimx executable from your working directory
    to $UIMXDIR/bin/uimx.

If you need further assistance, please contact ICS at 617.621.0060 or via email at support@ics.com.

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