

**HOME THEATER MASTER
LCD TOUCH SCREEN
PREPROGRAMMED AND LEARNING
REMOTE CONTROL**



**MX-1000
OPERATING
PROGRAM**

CONTACT INFORMATION

Home Theater Master and Universal Remote Control, Inc., are dedicated to putting customer requirements first. With the introduction of the HTM MX-1000 and the MX Operating Program software, our entire team has worked diligently to provide one of the most sophisticated home entertainment accessories available.

We will continue to improve and upgrade the MX Operating Program. With that in mind, we'd like you to know that we look forward to your comments and questions. You can contact us via the following:

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1. INTRODUCTION—GENERAL

The MX-1000 Operating Program (MXOP) is a powerful addition to the MX-1000 preprogrammed and learning remote control. It allows you to quickly and easily refine the capabilities of your remote by customizing Device screens, or pages. Using a PC and a serial cable connected to your remote, you can download new button and page designs to your remote all at once, as well as upload already-created page definitions for storage and manipulation.

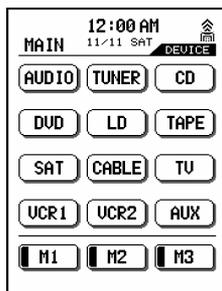
WHY SOFTWARE?

Why would you want to use the software, when you already know that the remote itself is quite capable of creating and assigning buttons for all your Devices? Simple: the software can do so much more, and it can do it faster. On the other hand, if you don't feel inclined to create master works of button design, or you're not comfortable with PC software, you can bypass the MXOP altogether and still enjoy a rich, complete experience setting up the MX-1000 directly from the remote. The choice is yours: however, may we suggest that the possibilities for design using the MXOP can provide some pretty interesting results...

Take a look at the figure below, which compares an actual MX-1000 screen with the MXOP display screen. You can see that the software exactly duplicates the remote's display. This is one of the design details that makes using the MXOP so simple.



MX-1000 Main Screen



MXOP Software Main Screen

1. INTRODUCTION—GENERAL

SOFTWARE CANS AND CANT'S

Of course, you still need the remote for some programming functions. Here's a basic list of what you can expect the software to do for you.

WHAT THE MXOP SOFTWARE CAN DO

- Change, delete, add, and copy buttons, to a total of 31 designs (each of which can be used many times on different page displays)
- Add new buttons from a preset library
- Drag-n-drop buttons to new positions
- Change button labels, using two sizes of text at once, if desired
- Design new buttons with built-in drawing tools
- Zoom in to individual-pixel level for exact drawing
- Position buttons precisely with grid and cursor coordinate control
- Upload settings from the MX-1000, which can then be changed
- Save uploaded page formats to disk
- Download new and revised page and button designs to the MX-1000
- Import page and button designs (command sets) from files created by other users
- Provide speedy operation through extensive use of mouse right-click

WHAT THE SOFTWARE CANNOT DO (YET)

- Copy button or page command-functionality from screen to screen
- Add preprogrammed commands to buttons
- Delete blank or unused pages
- See page 41 for more

QUICK START: USING THE MX PROGRAM RIGHT AWAY

Quick Start is the name of the next chapter: go there now if you want to begin programming right away. However, we recommend you read Chapter 4, *Transferring Files* first, so you can be sure to save your prepro-

1. INTRODUCTION—GENERAL

grammed MX-1000 settings before attempting to download new ones. *Quick Start* describes how to install the software, and how to quickly change, delete, add, and copy buttons. Detailed programming instructions are found in Chapter 7.

Other chapters describe, in detail:

- Hooking up the Hardware, p.17
- Operating Tips, p.47
- Troubleshooting, p.49

MINIMUM REQUIREMENTS

This manual assumes that you are familiar with the Windows Operating System. You should understand the concept of file management, Serial Ports, and BIOS adjustment settings.

To function properly, the MX Operating Program requires at least the following:

- PII 133 or better CPU
- Windows 95, 98, 98SE, ME, or NT 4 or better
- 128 MB RAM
- 6 MB hard disk space
- Available Serial Port

2. QUICK START

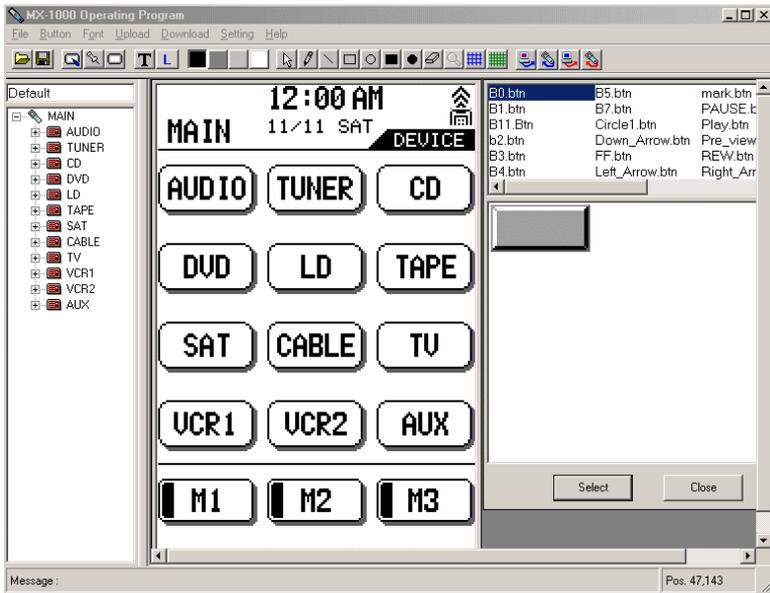
This chapter provides a simple overview that you can use to get the MX Operating Program software up and running right away, and do some button programming.



NOTE: You can also design your own buttons using the Drawing Tools on the Buttonbar; see Chapter 7, *Designing Screens* for details.

Covered in this chapter:

- Installing software
- Working with buttons



Main Program Screen

2. QUICK START

INSTALLING SOFTWARE

To install the MX Operating Program:

1. Run the `MX100 Design.exe` file, and follow the instructions.
2. Following installation, run the program from the **Start** menu.



NOTE: You can run multiple instances of the software; however, this is not recommended.

WORKING WITH BUTTONS

This section describes how to quickly:

- Delete buttons
- Change buttons
- Replace buttons
- Copy buttons
- Add buttons
- Edit button labels

Creating buttons is covered in detail in Chapter 7, *Designing Screens*.



NOTE: To apply your button changes to the MX-1000, you must download them to the remote. Prior to doing so, you may wish to save your existing command set (a command set consists of all file types used by the MX-1000). For instructions on doing this, refer to Chapter 3, *Hooking up the Hardware*.

To delete a button shape:

1. Click on a Device and page in the Device tree, at the left of the software display.
2. In the Page Preview window, right-click twice the button you want to change (not on the text).
3. Click **Delete** from the pop-out menu; the button deletes.

2. QUICK START

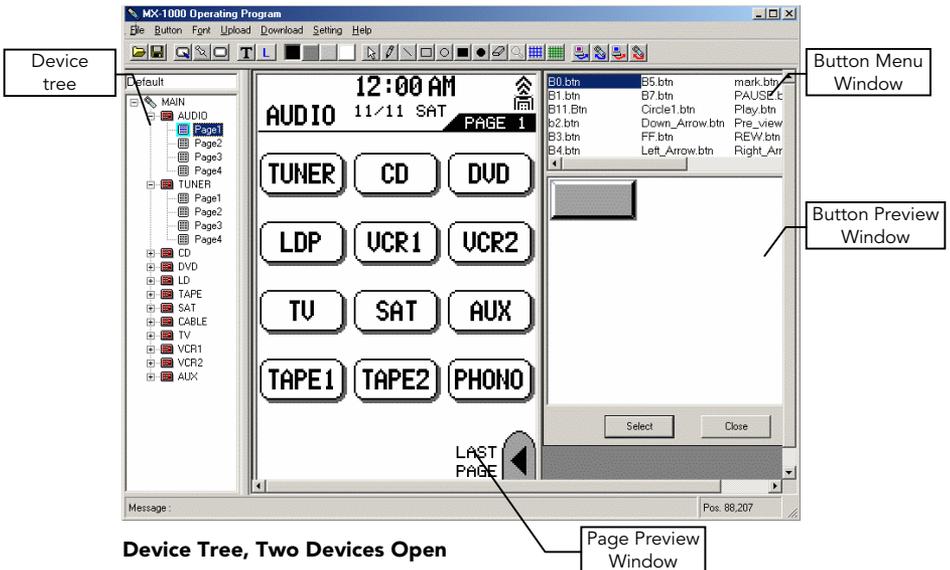
- Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).



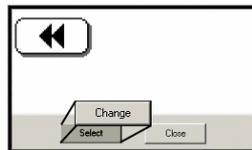
NOTE: Do NOT use the Delete button on your keyboard.

To change a button shape:

- Click on a Device and page in the **Device tree**, at the left of the software display.



- Click on any .btn name in the Button Menu window to preview button types. They will appear in the Button Preview window; decide which button you prefer.
- In the Page Preview window, right-click twice the button you want to change (not on the text).
- Click **Change** from the pop-out menu. The **Select** button in the Button Preview window becomes a **Change** button.



2. QUICK START

5. Click the **Change** button. The button you selected in the Page window assumes the new button look.
6. Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).



NOTES: 1. Buttons listed in the Button Menu are associated with preprogrammed commands.
2. Device buttons cannot be deleted; they can be changed, however.

To replace a button:

Replacing a button is different than *Changing* a button. When you Change a button shape, the button keeps its associated command. When you Replace a button, any associated command is lost. To regain the command, refer to *Restoring Preprogrammed Commands* on page 34.

Generally, a button should only be added in the location of an existing button (see Chapter 7 for more details).

1. Click on a Device and page in the Device tree, at the left of the software display.
2. In the Page Preview window, right-click any button twice.
3. Click **Delete** from the pop-out menu.
4. Click on any .btn name in the Button Menu window to preview button types. It will appear in the Button Preview window; decide which button you prefer.
5. Click the **Select** button.
6. Move the cursor over the Page Preview; you will see an outline of the new button.



NOTE: Use the Grid button to display two types of grid for exact button positioning.

7. Click where you want the button to be located; the new button drops into place.
8. Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).

2. QUICK START



- NOTES:** 1. Buttons listed in the Button Menu are not associated with preprogrammed commands.
2. Device buttons can be changed, but not deleted.

To copy a button:

A button from any page (within a single Device) can be copied to replace an existing button (see Chapter 7 for more details).

1. Click on a Device and page in the **Device** tree, at the left of the software display.
2. In the Page Preview window, right-click any button twice.
3. Delete the button (see *To delete a button shape* above).
4. Right-click twice on the button you want to copy.
5. Click **Copy**.
6. Position the mouse cursor at the upper-left corner of the location you want to paste the copied button.
7. Left- or right-click; the button is pasted to the Page.
8. Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).

To create a new button shape:

1. Click **Button > Design** from the menu bar; the Button Edit window displays.
2. Draw a new button shape, using the tools in the Drawing area of the button bar (for details, see Chapter 7, *Designing Screens*).



3. Click the **Save** button in the upper-right of the Drawing Window.
4. Once the button is saved, the program will ask *Do you want to register the button?*



- NOTE:** You can register up to 31 created buttons; see Chapter 7, *Designing Screens* for details.

2. QUICK START

5. Modify the button after it is registered by clicking on the button name in the Button Display window, clicking the **Select** button, and left- or right-clicking in the Button Drawing window to paste it. After modifying, click the **Save** button again.
6. Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).

To add a button:

Generally, a button should only be added in the location of an existing button (see Chapter 7 for more details).

1. Click on a Device and page in the Device tree, at the left of the software display.
2. In the Page Preview window, right-click any button twice.
3. Click on any .btn name in the Button Menu window to preview button types. They will appear in the Button Preview window; decide which button you prefer.
4. Click the **Select** button.
5. Move the cursor over the Page Preview; you will see an outline of the new button.



NOTE: Use the Grid button to display two types of grid for exact button positioning.

6. Click where you want the button to be located; the new button drops into place.
7. Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).



NOTES: 1. Buttons listed in the Button Menu are associated with preprogrammed commands.
2. Device buttons can be changed, but not deleted.

To edit or add button labels:

1. Click on a Device and page in the **Device** tree, at the left of the software display.

2. QUICK START

2. Click **Font** from the menu bar, and click either **Small** or **Large**; this will determine the size of the actual typeface being used.
3. In the Page Preview window, right-click any button twice.
4. Click **Edit**; a cursor appears in the text.
5. Backspace over the existing text, and enter new text.
6. Click **File > Save As** from the menu bar, and give your new layout a new file name (the “default.mdl” layout cannot be changed).
7. For more details on the topic of editing text, see *Editing Labels and Text* on page 46.



NOTE: Do not use the  button when editing button labels; this command is reserved for adding text to screen backgrounds. See *Editing Labels and Text* on page 46.



NOTE: You can also use the Drawing Tools on the Buttonbar to draw directly on the Page Preview display. This is useful if you want to add instructional or other text that is not for button labels.

3. HOOKING UP THE HARDWARE

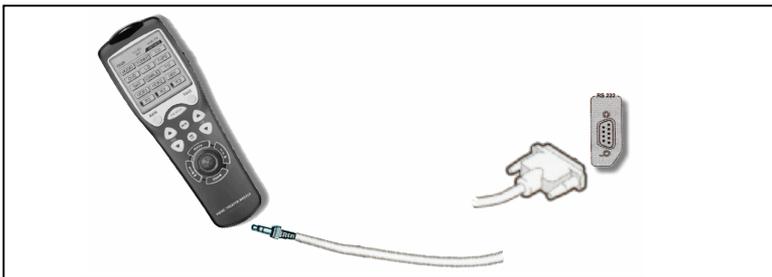
The MX Operating Program can transfer Device files to and from the MX-1000 remote control.

Covered in this chapter:

- Connecting the serial cable
- Serial Port Settings

Transferring files is accomplished with the special cable provided with the MX-1000.

One end of the cable is a mini-jack that plugs into your MX-1000; the other end is an RS-232 serial connector that goes to a PC serial port.



Remote to PC Connector Cable

To connect your MX-1000 to your PC:

1. Ensure that you have a spare, active serial port on your PC. You may have to change a setting in your BIOS.
2. Plug the female serial connector to a serial port on your PC.
3. Plug the mini-jack into the MX-1000's base.



NOTE: Prior to downloading any new settings to your remote, it is a good idea to upload your current settings and save them. This way, you will always have a backup in case an operation fails, especially if you have already spent some time programming your remote.

3. HOOKING UP THE HARDWARE

To upload and download files, refer to Chapter 4, *Transferring Files*.

SERIAL PORT SETTINGS

Data transfer via serial ports can sometimes be tricky. To set up the software for a serial port on your PC:

1. Click **Setting > Serial Port**.
2. Click a button to select a known, available serial port. Com 1 is recommended.



NOTE: If a particular port is not in use or not activated, you will have to do some **troubleshooting**, either to set up your BIOS or remove Com port conflicts.

3. Check to ensure that your PC's port settings conform to the following:

PARAMETER	SETTING
Bits per second:	115200
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	Xon / Xoff

4. TRANSFERRING FILES

Before you can transfer files between the MX Operating Program and your MX-1000 remote control, you must connect the serial cable between your PC and the remote. Details for this are found in Chapter 3, *Hooking up the Hardware*.

You can also import and use command sets created by other users. Refer to the procedure at the end of this section for details.

Covered in this chapter:

- MXOP File Types
- Uploading/Downloading
- Importing Command Sets

COMMAND SETS: MXOP FILE TYPES

As you may have suspected, there is more than one file-type associated with programming the MX-1000. As a group, these files are known as a **Command Set**. The files in a command set are described as follows:

File type	Description
.mdl	This is the main Page file, and contains the physical layout of all the buttons for each device. The contents of an .mdl file are displayed in the Device tree.
.btn	The .btn file holds the description and design of the buttons themselves.
button.ini	Different buttons can be used for each layout you create; the button.ini file tells the Operating Program which set.
.ldt	The commands learned by your remote are contained in the .ldt file. They are linked directly to the buttons.
.pdt	Any program set you define creates its own .pdt file, it holds commands associated with pre-programming your remote with Device codes from the Set-Up Code Table. This file must accompany the others if you want to exchange full command functionality.

4. TRANSFERRING FILES

Files in Command Set

All file types are required to properly run both the software and the remote control.



NOTE: When uploading/downloading these files, it is important that they be initially placed in the root directory of the MX Operating Program.

To upload and download the MXOP files, see below.

UPLOADING

Begin by uploading your current MX-1000 settings to the program. This will give you a safety backup of your remote's commands, which you can always return to if you make a mistake or change your mind.

Two types of file must be uploaded:

- Operating Program files
- Learned Program files

To upload the Operating Program files from your MX-1000:

1. Ensure that you have correctly connected your PC and remote using the supplied cable; see Chapter 3, *Hooking up the Hardware*.
2. On your MX-1000, select *Program Loading* from the *System Settings* screen. The PC Interface screen displays.
3. From the software menu, click **Upload > Operating Program**. A message window will open, confirming your request.
4. Click **Upload** in the message window. Another message appears telling you to *Please press the Upload button on the LCD screen of your remote control*.
5. Press the *Up Load* button under *Operating Program* on the *PC Interface* screen. The software takes control and transfers the files from your remote to the PC; a progress bar displays, indicating that the transfer is active.
6. The remote plays a tune when the process is complete. The dialog changes to a **Receive OK!** Message, and a **File Open/Save** dialog displays over the software.

4. TRANSFERRING FILES

7. Enter a name for your newly-uploaded .mdl file.



NOTE: The **Receive OK/Cancel** dialog remains open until after you have saved the new file.

8. Click **Save** to save the .mdl file, and the **Creating File** dialog displays. A progress bar displays.
9. Click **Finish** when the process is complete.
10. Begin programming your new command set. See Chapter 5, *Software Description* for details.

To upload the Learned Program files from your MX-1000:

1. Ensure that you have correctly connected your PC and remote using the supplied cable; see Chapter 3, *Hooking up the Hardware*.
2. On your MX-1000, select *Program Loading* from the *System Settings* screen. The PC Interface screen displays.
3. From the software menu, click **Upload > Learned Program**. A message window will open, confirming your request.
4. Click **Upload** in the message window. Another message appears telling you to *Please press the Upload button on the LCD screen of your remote control*.
5. Press the *Up Load* button under *Learned Program* on the *PC Interface* screen. The software takes control and transfers the files from your remote to the PC; a progress bar displays, indicating that the transfer is active.
6. The remote plays a tune when the process is complete. The dialog changes to a **Receive OK!** Message, and a **File Open/Save** dialog displays over the software.
7. Enter a name for your newly-uploaded .ldt file.



NOTE: The **Receive OK/Cancel** dialog remains open until after you have save the new file.

8. Click **Save** to save the .ldt file, and the **Creating File** dialog displays. A progress bar displays.
9. Click **Finish** when the process is complete.



NOTE: The program will not allow you to overwrite the Default .ldt file settings.

4. TRANSFERRING FILES

DOWNLOADING

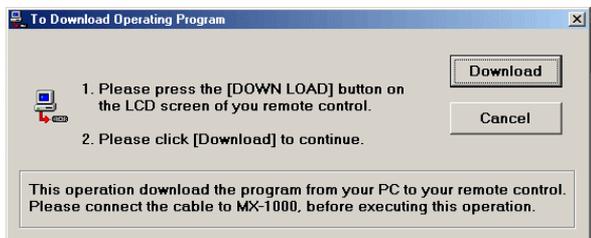
Once you have created a new command set for your MX-1000 using the MX Operating Program, you can easily transfer the files to your remote. The procedure is basically the opposite of the Upload steps.

Two types of file must be downloaded:

- Operating Program files
- Learned Program files

To download the Operating Program to your MX-1000:

1. Ensure that you have correctly connected your PC and remote using the supplied cable; see Chapter 3, *Hooking up the Hardware*.
2. On your MX-1000, select *Program Loading* from the *System Settings* screen. The PC Interface screen displays.
3. From the software menu, click **Download > Operating Program**. A message window will open, confirming your request with instructions on proceeding.



4. Click **Operating Program > Download** on the *PC Interface* Screen of the MX-1000. Do not click **Download** under the **Learned Program** heading on the MX-1000.
5. Click **Download** in the message window shown in Step 3. The software takes control and transfers the files from your PC to the remote; a progress bar displays, indicating that the transfer is active.
6. The remote plays a tune when the process is complete. The dialog changes to a **Download succeeded!** Message; the remote displays a test screen, indicating all systems are good.

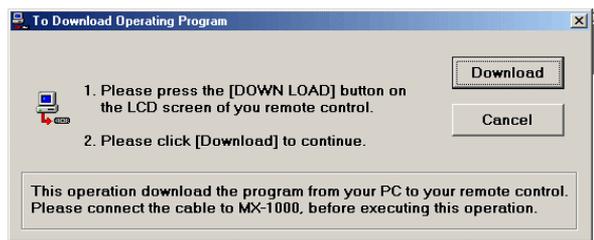
4. TRANSFERRING FILES

7. Click **Finish** when the process is complete.

To download the Learned Program files to your MX-1000:

1. Ensure that you have correctly connected your PC and remote using the supplied cable; see Chapter 3, *Hooking up the Hardware*.
2. On your MX-1000, select *Program Loading* from the *System Settings* screen. The PC Interface screen displays.
3. From the software menu, click **Download > Learned Program**. A **File Open** dialog window will open.
4. Click on the name of the `.ldt` file associated with your `.mdl` file. For example, if your main file is named "mine.mdl", then the learned program file is named "mine.ldt".

A message window will open, confirming your request with instructions on proceeding.



5. Click **Learned Program > Download** on the *PC Interface* Screen of the MX-1000. Do not click **Download** under the **Operating Program** heading on the MX-1000.
6. Click **Download** in the message window shown in Step 4. The software takes control and transfers the files from your PC to the remote; a progress bar displays, indicating that the transfer is active.
7. The remote plays a tune when the process is complete. The dialog changes to a **Download succeeded!** Message; the remote displays a test screen, indicating all systems are good.
8. Click **Finish** when the process is complete.

4. TRANSFERRING FILES

IMPORTING COMMAND SETS

There is already a growing user-base of MX-1000 owners. With the special design capability of the MXOP, there are sure to be some interesting command sets. You can share your own creations with other users, and import their sets to use with your MX-1000.

To use command sets created by others:

1. Ensure that you have all file types associated with the command set you want to import: `.mdl`, `button.ini`, `.ldt`, and `.pdt`.



NOTE: All files must be located in the root directory of the folder where the MX Operating Program is installed.

2. Ensure that all buttons (`.btn` files) associated with the command set are copied into the `Button` folder.
3. Click **File > Open**.
4. Find the `.mdl` file associated with the set you wish to import, and open it. The Page Display window will show you the button layout for the Main page.
5. Make any changes you want to the buttons and layout, and save the file using **File > Save**, or **File > Save As** if you don't want to overwrite the original files.
6. Download the files to your MX-1000; see the section titled *Downloading* on page 22.
7. Begin using your new command set.

5. SOFTWARE DESCRIPTION

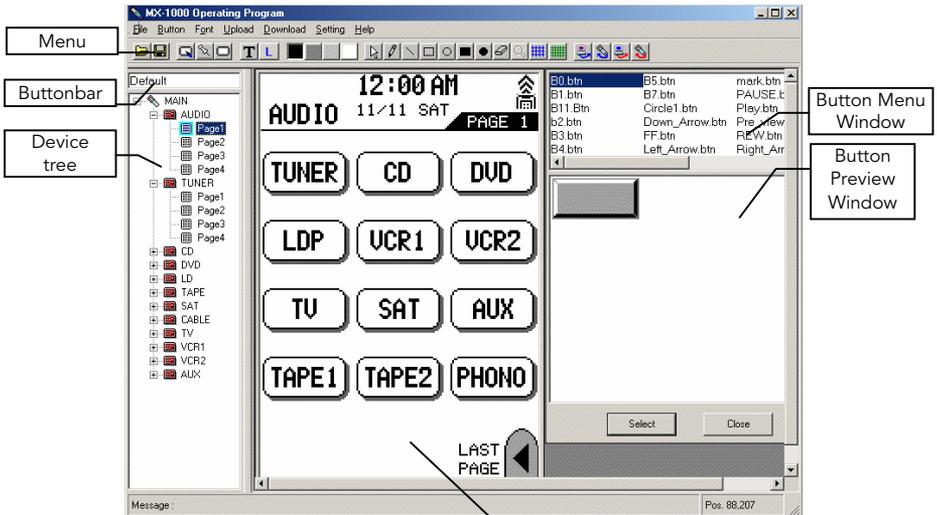
This chapter describes the MX Operating Program software in detail.

Covered in this chapter:

- Software display interface
- Main MXOP software display window
- Menus
- Buttonbar
- Device Tree
- Page Preview Window
- Button windows: Menu and Preview

MAIN MXOP WINDOW

The main elements of the MXOP design window, which can be resized to suit your needs, consist of the following:



Main MXOP Design Window

Page Preview Window

5. SOFTWARE DESCRIPTION

- **Menu:** Provides key functionality for designing Pages (see page 26).
- **Buttonbar:** Includes single-click shortcuts for some Menu items; contains all drawing-tool buttons for designing and modifying buttons (see page 27).
- **Device Tree:** Lists all Devices associated with the MX-1000 remote, and the four pages available for each Device, whether they are programmed or not (See page 29).
- **Page Preview window:** Displays an accurate representation of each Device screen on the MX-1000, when selected from the Device tree (see page 30).
- **Button Menu window:** Lists all buttons registered to the command set being edited (see page 31).
- **Button Preview window:** Displays the shape of any button selected in the Button Menu above it; labels are not associated with these buttons (see page 31).
- **Button Edit window:** The Button Edit window (not shown in figure), accessible from the **Button > Design** menu, is described in detail in Chapter 7, *Designing Screens*.

Each of these elements is described in detail here.

MENUS

The Menu is pretty straightforward, and comprises the following items:

File: Each of these commands functions exactly like the same commands in other Windows programs.

- Open:** Opens or imports an .mdl file containing a command set.
- Close:** Closes the current file, but leaves the program open.
- Save:** Saves the current file in a directory of your choosing.
- Save As:** Allows you to save a file with a different name.
- Exit:** Exits the program; prompts you to save your file if you have not done so.

5. SOFTWARE DESCRIPTION

Button: Button menu items

- ❑ **Design:** Opens the Button Design window for drawing and modifying buttons.
- ❑ **Register:** Saves the button name and design in the button.ini file.
- ❑ **View:** Opens the Button View window.

Font: Allows you to change the size of button-label text between Small and Large. Both sizes allow a maximum of 14 characters per label.

Upload: Provides for the transfer of files from the MX-1000 remote to the MXOP; see Chapter 4, *Transferring Files* for details.

Download: Provides for the transfer of files from the MXOP to the MX-1000 remote; see Chapter 4, *Transferring Files* for details.

Setting: Defines a serial port for use with the Upload/Download functionality of the MX Operating Program. To use, see *Serial port Settings* on page 18.

Help: At present, there is no online Help file.

- **Help > About program** displays a Window showing the revision number of the software.
- **Go to website** takes you directly to the Home Theater Master Home page. Use this link when seeking Technical Support.

BUTTONBAR

The MX Operating Program Buttonbar provides a number of menu shortcuts, and the main drawing tools for designing and manipulating buttons.



MXOP Buttonbar



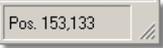
NOTE: You can also use the Drawing Tools on the Buttonbar to draw directly on the Page Preview display. This is useful if you want to add instructional or other text that is not for button labels.

5. SOFTWARE DESCRIPTION

Buttonbar buttons are described in the table:

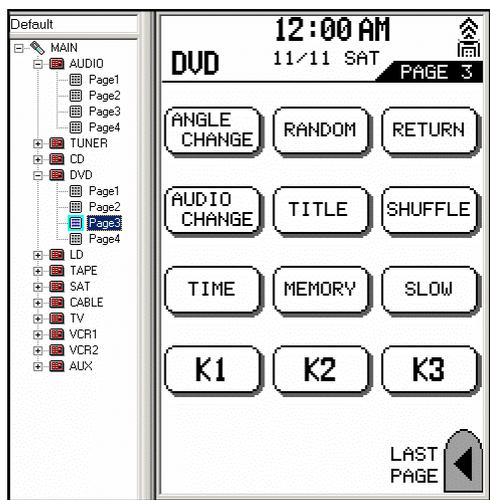
Button	Description
	Open .mdl and associated files, personal or imported
	Save .mdl and associated files
	Open button design/edit window
	Register new button
	View button
	Edit text on the Device page; not for editing button labels
	Choose between Large and Small sized text. Click once for Large; click again for Small
	Color buttons: click to select a color before using one of the shape drawing tools
	Cursor tool
	Drawing pencil: create dots and dotted lines; one click per dot
	Line tool: Hold down to draw lines
	Draw empty square or circle (circles draw from center out)
	Draw filled boxes or circles (draws from upper left corner)
	Eraser tool: Erases one block per click
	Zoom tool: Provides close-up view depending on where you click in the Button Edit window
	Grid views: Provides a grid with either large or small quadrants, or both, for pinpoint accuracy when placing buttons
	Download Operating Program: Saves the open file to disk, and downloads to your connected MX-1000
	Upload: Upload operating files from your MX-1000 to the MX Operating Program
	Download Learned Program: downloads the commands associated with buttons to your MX-1000

5. SOFTWARE DESCRIPTION

Button	Description
	Upload Learned Program: uploads the commands associated with buttons to your MX-1000
	Cursor indices position: In the lower right corner of the program window. While not a button, it denotes the location of the tip of the cursor, for pinpoint accuracy when placing drawing objects

DEVICE TREE

The left-most pane in the MX Operating Program window, referred to as the Device Tree, displays an explorer-like tree of all the Devices available to the MX-1000. When you start the MXOP the first time, the Device Tree displays the `default.mdl` file. After that, the program remembers which command set file was loaded last time, and displays that information in the Device Tree.



Device Tree, DVD Page 3 selected

5. SOFTWARE DESCRIPTION

Using the tree is simple:

- Double-click on any Device name and click on a page to display that page of the operating system in the Page Preview window;
- Change Device labels on the **Main Page**; instructions for editing text are on page 46.
- The Device Tree display can be widened for viewing by click-dragging the mouse on the right border of the pane.

PAGE PREVIEW WINDOW

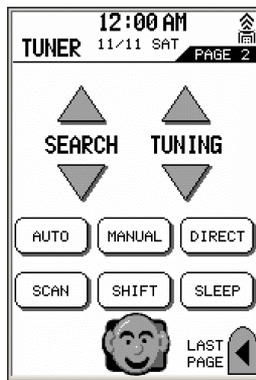
The Page Preview window displays the currently selected program screen. Apart from actually designing buttons, this is where most of the activity takes place. Here, you can change buttons, change labels, and copy and move buttons around to suit your own requirements. This is the key feature of the MX Operating Program, and what makes it so desirable for owners of the MX-1000 universal remote control.

Here's what you can do on this screen:

- Right- or left-click on any button, and drag it to a new position, change it with another button shape, or delete it altogether (when you delete a button, the label is deleted as well).
- Right- or left-click on any button label, select Edit, and change the label or delete it altogether.

For detailed procedures covering the creation and placement of buttons, refer to Chapter 7, *Designing Screens*. For procedures covering changing, deleting, add, copying, and renaming buttons, see Chapter 2, *Quick Start*.

**Tuner Page with
Newly Created
Button**



5. SOFTWARE DESCRIPTION

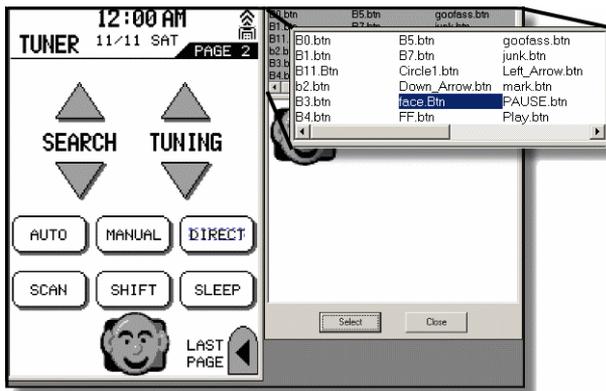
Once you have made all your changes, you can download the new Operating Program to your MX-1000 remote; see Chapter 4, *Transferring Files* for details.

BUTTON WINDOWS

There are two windows dealing specifically with buttons, other than the Design/Edit window, that are viewable at all times. They are:

- Button Menu window
- Button Preview window

Button Menu window: The Button Menu window, in the upper right of the software display, lists all buttons currently registered to the software. To appear in this list, a button must be registered.



Button Menu and Button Preview Windows

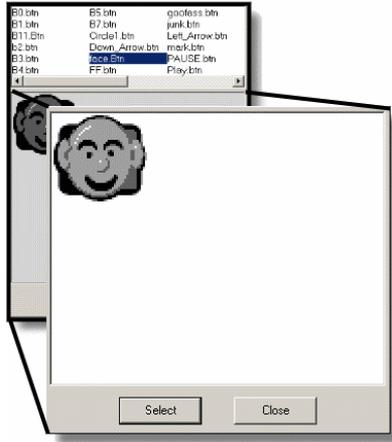
Buttons are added to the software through the registration process, accessed through the **Button** menu.

Button Preview window: Once a button is registered, it can be selected for use by clicking on its name in the list. This causes it to appear in the Button Preview window just beneath the list. Further actions can be taken once a button is displayed in the Button Preview window.



5. SOFTWARE DESCRIPTION

You must add newly created buttons using the Register function before they will be available in the Button Menu window. Exact procedures for creating, changing and registering buttons are found elsewhere in this manual.



**Button Preview and
Button Menu Windows**

6. BUTTONS AND COMMAND CODES

When it comes to designing Pages for the MX-1000 remote control, it's all about *the buttons*. But before you begin designing your own screens, it's a good idea to learn how command codes are associated with buttons, and how you can ensure that you maintain these links during the upload and download process.

Covered in this chapter:

- Command Codes
- How are codes linked to buttons?
 - Button Key Data Table: what is it?
- Registering buttons
 - Button Limits
- Maintaining the links
- Macros and Punch Throughs
- Preventing software crashes
- Stamping vs. Selecting when drawing buttons

COMMAND CODES

Here are a few key things to remember when customizing your Pages and buttons:

1. When you upload and download your settings between the MXOP and the MX-1000, the `.dat` file maintains the command-set links you already preprogrammed. In this way, the buttons remember the commands associated with them.



NOTE: Macros and Punch Throughs are *not* maintained during the transfer process.

2. However, when you customize your Pages by moving buttons around, and changing their shape and labels, the new buttons may lose their commands. This is especially true if you create entire new Pages of buttons. After you download the new command set to the MX-1000, these new buttons will have to be programmed.

6. BUTTONS AND COMMAND CODES

3. Commands can *not* be added using the software.

HOW ARE CODES LINKED TO BUTTONS?

In the command set, it is the `.ldt` file that maintains the command code information for each button. When you upload from the MX-1000 to the software, the learned commands for each button are still linked. (This is not true for Macros and Punch Through assignments.)

During the transfer process, the preprogrammed codes are uploaded and stored in the *Button Key Data Table*. Changing the button locations in software may cause the preprogrammed functions to stop working; this can be rectified with the Add command; see next section.

RESTORING PREPROGRAMMED COMMANDS

Right clicking on any button in the Page Preview window provides access to the **Add Button** command. Ignore the unusual name for now; what it really does is provide you with a means of accessing your preprogrammed button commands.

It works like this:

1. Change your button, replacing it altogether with a new one (procedure can be found in Chapter 2, *Quick Start*).
2. Right-click on the new button to open the **Button Key Data Table** (BKDT), see example. The Table shows preprogrammed commands for all buttons on all four Pages of the Device selected.
3. Select the command you want.
4. Click OK. The command is linked to the button, and the BKDT closes.

6. BUTTON AND COMMAND CODES

	Page 1	Page 2	Page 3	Page 4
1	1	SEARCH UF	M1	K1
2	2	TUNING UP	M2	K2
3	3		M3	K3
4	4	SEARCH DC	M4	K4
5	5	TUNING DO	M5	K5
6	6		M6	K6
7	7	AUTO	M7	K7
8	8	MANUAL	M8	K8
9	9	DIRECT	M9	
10	AM	SCAN	GROUP	K9
11	0	SHIFT	M10	K10
12	FM	SLEEP	ENTER	
13				
14				

Button Key Data Table

You can also use this functionality to add a preprogrammed command to any button.

REGISTERING BUTTONS

Once you've created a new button (see how to do this in Chapter 7, *Designing Screens*), it must be registered to the command set. Only then will it be available for use with the software. Following registration of a button, its name appears in the Button Menu window.

To register a new button:

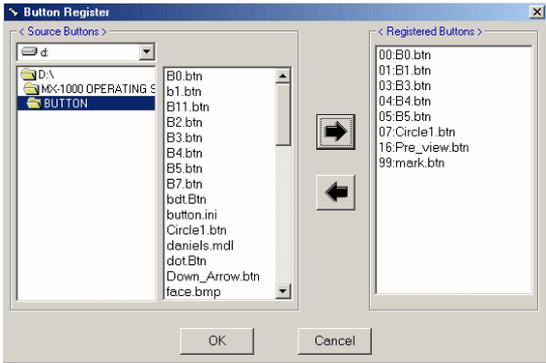
1. Create a new button; see Chapter 7, *Designing Screens*.
2. Click **Save** in the Button Edit window. The software will prompt for a filename (you cannot save over an existing registered button filename).
3. Once saved, the software will ask if you want to register the button, so that it can be used to design pages. Click **Yes**.
4. The Button Register dialog opens. Click the name of the button you want to register.



6. BUTTONS AND COMMAND CODES

5. Click the  register arrow.
6. Click OK; this registers the button for use with the software.

NOTE: If you receive an error message, it could be because you have reached the 31-button limit (see *Button Limits*, below). Try un-registering one or more buttons, and start again. Also, always check for double-registrations: the program may have already registered the button.



Button Registry Dialog

Once the button is registered, its name appears in the Button Menu window, and it is available for use.

BUTTON LIMITS

Even though the design interface allows buttons to be placed anywhere on the screen, there is a physical limit to the software. Any number of buttons can be created or added, and they can be placed anywhere on a Page. However, there are a couple of keys things to keep in mind:

- The maximum number of buttons the software can keep track of is 14 per Device page, for a total of 56 buttons per device. Adding more than 12 to 14 buttons to an individual Page will cause lots of problems. This is because of the limit for assigned buttons per Device: any more than 56 buttons per device causes problems. You could have more than 14 buttons on a single Page, but you would then need to remove some buttons from another page to balance the lot.

6. BUTTON AND COMMAND CODES

- While it may appear that buttons can be added anywhere on a Page, note the position of the *default button* command set carefully. With the exception of adding two buttons to the bottom row of each Page, beside the *Last Page* button, the software actually really only remembers the location of the existing 12 buttons. Placing buttons off this “matrix” may lead to unusual results. Not that it cannot be done: just watch for anything out of the ordinary when you download the command set to the MX-1000.
- The `button.ini` registry file can maintain a maximum number of 31 buttons per command set. This is true whether the buttons are tiny or large, and is due to the structure of memory available in the MX-1000. More than 31 can be added to the registry, but the file will not download properly to the MX-1000. See Chapter 9, *Troubleshooting*, for more information.
- Of the 31 buttons that can be registered, eight are reserved for use by the software; this means that you can create up to 23 buttons per command set. The eight reserved buttons are:
 - 00:B0
 - 01:B1
 - 03:B3
 - 04:B4
 - 05:B5
 - 07:CIRCLE1
 - 16:Pre-View
 - 99:Mark
- It is possible to register files with different filename extensions than `.btn`. And they will show up in the Button Menu; however, attempting to select such a file will cause a runtime error and the program will crash.

7. DESIGNING SCREENS

The ability to design screens for your MX-1000 universal remote control opens a new world of possibilities. It is an unfortunate fact that most remote controls, especially those with preprogrammed commands, often frustratingly leave out your most important choices for button commands. Further, remotes with only hard buttons cannot be relabeled, meaning you have to remember which button does what if you do any special programming. Worse, others in your family, and babysitters who've come over to help out with the kids, often can't even figure out how to switch your remote into DVD or VCR input mode.

As you know, the MX-1000 comes complete with a huge library of preprogrammed commands and button schemes. And using the remote alone, you can easily re-label the buttons of your choice. So, for example, if you want to call your TV *The Big Screen*, you can quickly do just that.

Now, with the **MX Operating Program**, you can also create and redesign buttons to match your lifestyle, all at the same time, then save them to a Command Set file. Then, create a whole different set of Device buttons, save them to another file, and switch between command sets and buttons whenever you like. Even better, if you know someone else who owns an MX-1000 (and shouldn't everybody?), you can trade command sets easily via the software.

Covered in this chapter:

- What the software can do
- What the software can NOT do
- Functional limitations associated with programmed commands
- How codes are assigned to buttons
- Buttons
- Mouse functions
- Registering buttons
- Button limit
- Buttons per screen limit
- Memory Limit

7. DESIGNING SCREENS

- Designing Buttons
- The drawing tools
- Using cursor keys for exact placement
- The grid

Not covered in this chapter:

Basic techniques for working with buttons are covered in the Chapter titled *Quick Start*, on page 10, *Working with buttons*. These include changing, deleting, adding, copying, creating, and renaming buttons.

WHAT THE SOFTWARE CAN DO

The MX Operating Program software can simplify your button-design life, and will let you adapt your remote Device screens to a 100%-satisfaction level. However, there are some things it won't do, and you must rely on the remote itself for these; see the next section in this chapter.

The following tasks can be performed with the software:

- Maintain preprogrammed codes associated with buttons when you upload
- Re-label Device buttons from the original 12 to any name at all, with up to 14 characters, in two type sizes
- Change the size, shape, and label of any button
- Change the size, shape, and label of Macro buttons M1, M2, and M3
- Upload and Download files between your PC and the MX-1000
- Cut, copy, and paste buttons between Pages within a Device
- Create a favorite Device page with buttons from more than one device showing on single (or multiple) screens
- Create a **Main 1** Page for adding your own Device buttons

7. DESIGNING SCREENS

WHAT THE SOFTWARE CAN NOT DO

Most of the following tasks can be accomplished using the MX-1000 itself, but cannot be duplicated using the software.

The following tasks cannot be done with the MXOP:

- Programming codes cannot be entered in the software or attached to buttons; only those buttons already registered with command functionality as part of the upload process maintain codes. This applies to both preprogrammed and learned codes.
- Macro operations, as with any other commands, cannot be taught within the software. Macros will stay with buttons that are preprogrammed or learned on the remote, but not when downloading.
- Backlight settings, macro timing, *beep* sound level, date and clock, touch pad alignment, master Device codes, erasing all buttons and/or command codes, resetting buttons to default factory mode (other than loading the `default.mdl` file), low battery warning, Punch Through for volume.
- Cut, copy, or paste buttons between Devices.
- Hard (functional) buttons cannot be programmed with the software.

FUNCTIONAL LIMITATIONS: HOW CODES ARE ASSIGNED

Preprogrammed codes stay with buttons when you upload your command set (`.mdl`) files to the MX Operating Program. Also, the registered buttons that appear in the Button Menu window have no commands associated with them when you use them for the first time.

For detailed information concerning codes and buttons, refer to Chapter 6, *Buttons and Command Codes*.

To add a code to a button created with the MXOP:

1. Download the files to the remote.
2. Assign or teach a command to the new button(s).
3. Upload the new set to the software, and save a new `.mdl` file. The button will now have a command associated with it.

7. DESIGNING SCREENS



NOTE: If you change the label on a Device button, the associated Device icon in the Device tree will change to reflect the new label.

DESIGNING BUTTONS

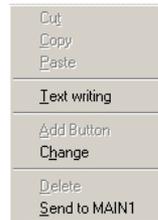
The first thing to note about designing your own buttons is that the program will only hold a maximum of 31 button designs. Further, the button size plays some part in the limitation, 31 very large buttons would not be accepted by the program. At present there is no real way to tell what the limitation might be; you will have to experiment.

CREATING A MAIN 1 PAGE

If you have not already done so on the MX-1000 remote control, you can add a second Main Page. This page mimics the Main page, but also allows you to change the button designs. Once created, the Main1 page becomes your default Device page. In this way, you can work around the restrictions placed on the buttons on the Main Page.

To create a Main1 Page:

1. Ensure that the Main Page is showing in the software.
2. Right-click on any Device button; the sub-menu opens.
3. Click **Send to MAIN1**; a new Main1 Page is created by the software.
4. Click on the **MAIN1** icon in the Device Tree; the new page displays.

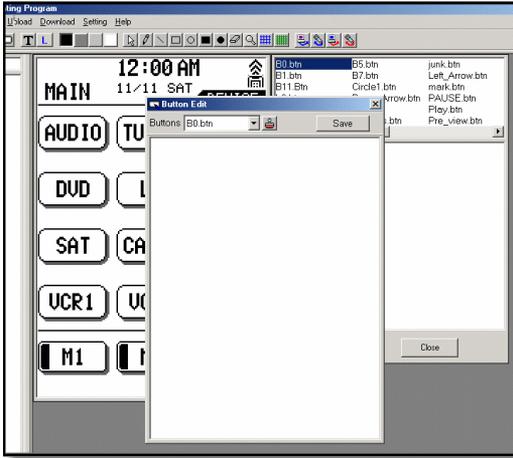


By repeating this procedure for all the Devices you use, you can set up your own customized default Device Page. Note as well that you have the ability to assign *only the Devices you want* to this page; in this way, Devices from the Main Page that you do not have in your home system are ignored.

7. DESIGNING SCREENS

BUTTON EDIT WINDOW

Clicking on **Button > Edit** opens the Button Edit Window. Here you can use the drawing tools in the Buttonbar to create your own buttons, or modify existing buttons.



Button Edit window in Main Display

DRAWING TOOLS

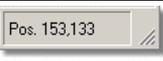
Drawing tools are accessed from the Buttonbar, highlighted here:



Individual button functionality is described in the table; note that most drawing tool buttons do not have a corresponding **Menu** command:

Button	Description
	Open button design/edit window
	Register new button
	View button
	Edit text on the Device page; not for editing button labels

7. DESIGNING SCREENS

Button	Description
	Choose between Large and Small sized text. Click once for Large; click again for Small
	Color buttons: click to select a color before using one of the shape drawing tools
	Cursor tool
	Drawing pencil: create dots and dotted lines; one click per dot
	Line tool: Hold down to draw lines
	Draw empty square or circle (circles draw from center out)
	Draw filled boxes or circles (draws from upper left corner)
	Eraser tool: Erases one block per click
	Zoom tool: Provides close-up view depending on where you click in the Button Edit window
	Grid views: Provides a grid with either large or small quadrants, or both, for pinpoint accuracy when placing buttons
	Cursor indices position: In the lower right corner of the program window. While not a button, it denotes the location of the tip of the cursor, for pinpoint accuracy when placing drawing objects

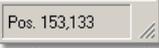
When creating a button, you have three choices:

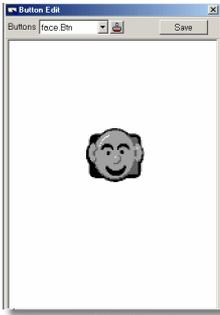
- You can display a button from the Button Menu window, and click Select, then paste it into the Edit window;
- You can use the Stamp button in the Edit window to paste a button from the Button Menu into the Edit window;
- You can draw a button from scratch, using the Buttonbar Drawing tools.

To create a new button:

1. Click **Button > Design**; the Button Edit window opens.
2. Click any drawing tool from the button bar.
3. Begin drawing in the Edit window.

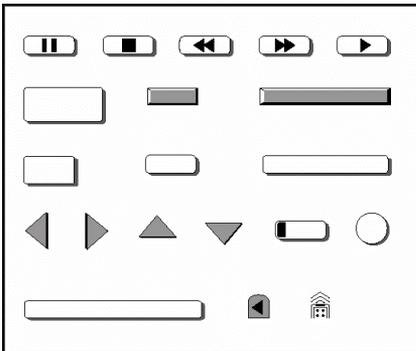
7. DESIGNING SCREENS

- To help with exact button placement:
 - Use the Grid buttons  to help with exact placement
 - Use the Cursor indices locator  in the lower-right corner of the MXOP program window
- When satisfied with your new button, click the **Save** button in the Edit window.
- Save your button with a new name in the **Save** dialog.
- The **Register** dialog will prompt you to register the button.
- Click **Yes**; the button becomes available for use.



A newly-designed and registered button, made with a rounded black box, several circles, and a few lines.

You can register a button at any time by clicking the **Button > Register** menu. Below is an illustration showing all the standard registered button shapes that are contained in the `default.mdl` file.



All registered default buttons

7. DESIGNING SCREENS



NOTE: You can also use the Drawing Tools on the Buttonbar to draw directly on the Page Preview display to add text that is not for button labels.

EDITING LABELS AND TEXT

You've seen how to add or change button labels in Chapter 2. The MXOP editing function has some added power to make your Page screens even more user-friendly.

Here's what you can do with the two text tools:

1. Click the **S** or **L** button on the Buttonbar to switch between Small and Large for text size; or click **Font > Small/Large** from the Menu.



2. Right-click on any button label to edit the text of the label.



NOTE: When changing an existing label, back up over, and delete, any existing characters. This prevents the risk of merging two different labels, which happens occasionally, throwing the remote out of whack.

3. Add a maximum of 14 characters per label.

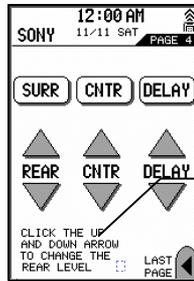
4. Click the **Text** button on the Buttonbar. This **Text** tool operates differently than right-clicking on a label. With the **Text** tool, you can add text directly to the Page layout, separately from the buttons. This allows you to add extra information, even instructions, to your screens.



5. Add text directly to any Page.



NOTE: It is possible to edit labels using the Text button  tool; however, this will cause problems with the operation of the Pages following downloads.



8. TIPS

This chapter includes a number of time-saving tips that you can apply to make programming the software a little easier.

Miscellaneous

- Most mouse functions can be accomplished with either right- or left-clicks.

Display Tips

- Program window can be resized by dragging a corner.
- Device tree display can be widened by click-dragging the right border of the pane.
- Mouse can be right- or left-clicked on most objects in the display.
- Be wary of placing buttons on the screen in locations different than the original ones, as they might miss the programming.

Serial Port

- Com 1 seems to work best for the transfer of files. Ensure there are no conflicts; reread Chapter 3.

Buttons

- For now, there is no way to add codes or functions from within the software, unless preprogrammed codes have been uploaded (see Chapter 6. It is expected that this will be possible in a future release.
- If you cut and paste buttons between pages, you can retain the preprogrammed functionality of commands.
- If you lose a preprogrammed command when pasting or moving buttons, use the Button Key Data Table via the **Add** command; see Chapter 6.

9. TROUBLESHOOTING

This chapter covers some of the problems you may encounter with the software, and how to deal with them. For issues not covered here, please refer to our website at www.hometheatermaster.com.

Crashes

Program crashes might be caused by the following:

- Some owners of Dell laptops have reported problems transferring files.
- Too many registered buttons.
- Buttons missing from the `button.ini` file; this might happen if you deleted a button manually from the Button directory.

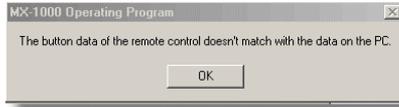
Serial port info

- Com 1 seems to work best for the transfer of files. Ensure there are no conflicts; reread Chapter 3.

Buttons

- If you have registered more than the maximum allowable number of buttons (31), the MX-1000 memory will overflow, causing a program crash when downloading. To overcome this, un-register buttons until you can successfully download the command set. Do this by opening the `button.ini` file in a text editor, and deleting the filename.
- Text labels seem to be missing or scrambled: This can happen if you label the buttons using the **Text** button tool. Always edit button labels using the right-click **Edit** function.
- If you are having problems with your buttons not working correctly after you've saved a new `.mdl` file, try saving it again using a different name. There seems to be a problem at present with updated files not completely overwriting existing files.
- If you get the following error message when uploading a *Learned Program* file:

9. TROUBLESHOOTING



... it is probably because you have made changes to the command set layout or codes using the remote itself. It is recommended that, once you have created a .mdl file using the software, further changes to the button layout should only be made using the software.

You can, however, upload the *Learned Functions* from the remote back into the command set with no problems. So, make any code changes you like using the remote, and upload them to the software to save them with the command set.

- If two separate buttons seem to be linked by the same command (that is, you change the command code on one button, and the other changes too), delete both buttons and replace them. Then re-learn the codes using the remote.