

Creating Custom 8400 Software Versions

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PLEASE READ CAREFULLY: This document is provided by Orban for users who wish to create customized presets that behave like 8400 factory presets for their Optimod-FM Model 8400 and 8400PD, and who may wish to create special versions of 8400 firmware with certain factory presets removed. It is provided “as is” for use entirely at the user’s own risk. Orban disclaims responsibility for any errors in this document. Orban will provide no factory support for procedures described in this document. The user should understand that incorrectly following procedures in this document can render the user’s 8400 inoperable, requiring replacement of the 8400’s disk-on-chip memory with one loaded from the Orban factory.

Getting Started

This document assumes that the reader is already familiar with the procedure for upgrading the software in an 8400. Briefly, this involves using an Orban application, `update.exe`, to download to the 8400 a zip file `8400_new.zip` via a serial connection, modem connection, or Ethernet TCP/IP connection.

`8400_new.zip` is not encrypted and can be edited by the user. This allows the user to create customized versions of 8400 presets, including new “Factory” presets.

In practice, the user can do two things:

- Delete any combination of factory presets
- Create entirely new presets, which will appear as factory presets to the 8400. These user-created “Factory” presets can have full Less-More functionality.

1. Run the latest version of Orban’s Installer, `Setup8400_x-x_update.exe`

x-x is the version number (like 2-1).

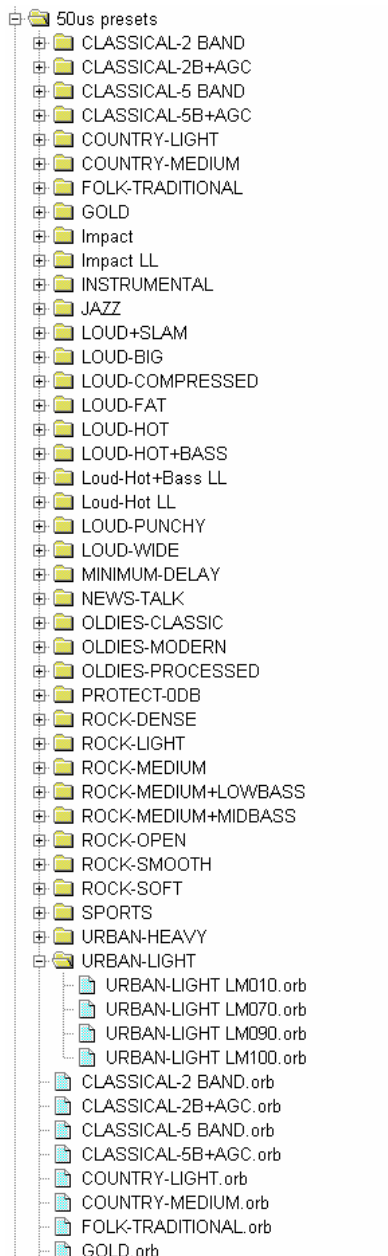
You can obtain Setup8400_2-1_update.exe from www.orban.com. Click Downloads and navigate to the 8400 folder.

Setup8400_2-1_update.exe creates a directory that is usually located in c:\Program Files\Orban\Optimod 8400. This directory should contain the file 8400_new.zip.

2. Move 8400_new.zip to another directory.

Choose a temporary directory where you can unzip it.

3. Using any zip utility, unzip 8400_new.zip to an empty directory on your PC.



Be sure to retain the direction structure within 8400_new.zip. You will be editing files and folders within this structure and then re-zipping the structure to create a new 8400_new.zip file.

The top-level directory structure in 8400_new.zip looks like this:

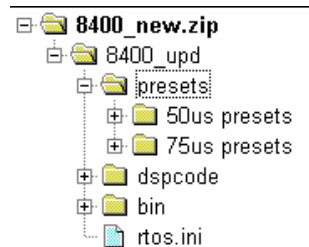


Figure 1: 8400_new.zip top-level directory structure

You will only be concerned with the presets directory and its subdirectories. Note that there are two identical subdirectory structures under the presets directory—one structure for 75us presets and one for 50us presets.

A typical structure (for “50us presets”) looks the figure to the left. You will note that there is one folder for every preset. These folders contain the Less-More presets associated with each factory presets, as shown for the Urban Light preset in the figure.

There are also FACTORY preset files, which are located in the 50us presets folder itself. These are the presets that are first put on-air when an 8400 preset is recalled. The Less-More presets only come into play if the operator enters Basic Control and edits a factory preset using the Less-More control.

In our example, there are only four presets in the Urban Light folder. These correspond to Less-

More settings of 1.0, 7.0, 9.0, and 10.0. The 8400 automatically interpolates other Less-More settings from the four anchor points that these files provide.

Deleting a Factory Preset

Deleting a factory preset is easy.

- A) In both the 50us Presets and 75us Presets folders, delete the file whose name corresponds to the name of the factory preset you wish to delete.
- B) In both the 50us Presets and 75us Presets folders, delete the folder whose name corresponds to the name of the factory preset you wish to delete.

Creating a New Factory Preset

As you have seen above, an Orban factory preset consists of a Factory Preset file plus a folder containing Less-More files for that preset. There are separate Factory Presets for both 50us and 75us and these are located under the appropriate 50us Presets and 75us Presets folders.

Briefly, you create a Factory Preset by first creating User Presets. Using 8400 PC Remote software, you archive your User Presets (which are in ASCII [text] format) on your PC's hard drive. Using any text editor (like Notepad), you then edit a few lines in the User Preset files you created. Finally, you create new Less-More folders for your edited presets, putting the Less-More versions in the Less-More folder and the one FACTORY version in 50us Presets or 75us Presets folder.

While you can create a User Preset by working directly from the 8400's front panel, we recommend using the PC Remote software to do this, not only because it is easier to work with, but also because you will use this software to archive the resulting User Preset, thereby putting it in editable form.

1. Create "Less-More" User Presets with your desired tuning.

- A) Choose a name for your new preset. (We will use MyPreset in the examples in this document). When creating a Factory Preset, it is very important to follow the naming conventions of files and folders, so you should choose your name before you start working. Renaming a Factory Preset later is not trivial.
- B) Create one User Preset corresponding to Less-More = 10, one preset corresponding to Less-More = 1, and at least two more. Do this for 50us and 75us.

One of these last two User Presets should correspond to the normal Less-More setting for the Factory Preset you are creating, which is typically 7 to 9.5. The other should correspond to a lower setting; 5 is typical.

Finish all your presets for one pre-emphasis before creating the presets for the second pre-emphasis. Files are only identified as "50us" or "75us" by the folder in which they are located. Because there is nothing in the file name or contents of a preset to label it "50us" or "75us," you should

carefully plan ahead by creating all your 50us files first, saving them in the appropriate folder, and then repeating with the 75us files (or vice-versa).

If your preset will be used exclusively in a 75us or exclusively in a 50us region, you can create presets optimized for 75 or 50us respectively and then duplicate the same files into the other pre-emphasis folder.

- C) Save your Less-More presets to the 8400, using the following naming convention exactly:

MyPreset LMxxx, where xxx corresponds to the Less-More value of the preset. For example, Less-More = 8.5 would result in a file name of MyPreset LM085. Less-More = 10.0 would result in MyPreset LM100.

There should be one (and only one) space before the "LM."

2. Archive the Less-More presets you created

Use the 8400PC's Copy function to copy to your PC all of the LESS-MORE presets you just created.

On your PC's hard drive, you will see files with each of your assigned names plus the suffix ".orb." These files are stored in the folder ~\user, where ~ is the path where you initially installed the PC Remote software. The default for ~ is: c:\Program Files\Orban\Optimod 8400.

3. Create a subfolder named "MyPreset" under the 50us Presets folder.

Move all of your User Presets corresponding to 50us LESS-MORE presets into this folder.

4. Create a subfolder named "MyPreset" under the 75us Presets folder.

Move all of your User Presets corresponding to 75us LESS-MORE presets into this folder.

If your 50us and 75us presets are identical (and you have only made one set), copy the same files into both of the 75us and 50us folders.

5. Edit the properties of the LESS-MORE presets

For each LESS-MORE preset in the 50us and 75us folders:

- A) Open the preset file in an ASCII text editor, like Notepad.

The filenames of the LESS-MORE presets will typically be MyPreset LMxxx.orb

Presets must be saved in pure text form; be sure your editor does not add extra characters (as many word processors do).

- B) Change the line

```
Preset Type= <USER PRESET>
```

to read:

```
Preset Type= <LESS MORE PRESET>
```

- C) Edit the line beginning "Factory Preset Name" to read:

```
Factory Preset Name=<MyPreset>
```

Where “MyPreset” is the name of the preset you are creating.

D) Edit the line resembling

```
C:<LESS MORE>Cent:700;D:12;
```

such that the first number corresponds to the LESS-MORE step described in this file (in this example, LESS-MORE = 7.0) and the second number is associated with this LESS-MORE number according to the following table:

LM	D:	LM	D:	LM	D:	LM	D:	LM	D:
1.0	0	3.0	4	5.0	8	7.0	12	9.0	16
1.5	1	3.5	5	5.5	9	7.5	13	9.5	17
2.0	2	4.0	6	6.0	10	8.0	14	10.0	18
2.5	3	4.5	7	6.5	11	8.5	15	---	---

E) Save your edited preset and close it.

6. Create the Factory Preset file

Repeat the following for the 50us and 75us folders:

A) Copy the LESS-MORE file corresponding to the factory parameters for MyPreset to the 50us Presets or 75us Presets folder, as appropriate.

B) Using your file manager, rename the Factory Preset file to MyPreset.orb.

C) Open the preset in an ASCII text editor, like Notepad.

D) Change the line

```
Preset Type= <LESS MORE PRESET>
```

to read:

```
Preset Type= <FACTORY PRESET>
```

E) Save your edited preset and close it.

Creating a New Version of 8400_new.zip

When you have finished removing any factory presets that you wish to eliminate and creating the necessary files and folders that define your new factory presets, you are ready to create a new version of the 8400_new.zip file that gets sent to your 8400 when you do a firmware update.

Use the zip utility of your choice to create a zip file of 8400_upd and all its subfolders. The folder structure must be identical to that in Figure 1 on page 2. The only changes should be those you made to the contents of the 50us Presets and 75us Presets folders.

Set the options on the zip utility so that 8400_upd is the root folder in the zip archive and the folder structure below 8400_upd is preserved. Name this archive 8400_new.zip.

Downloading your new 8400_new.zip to your 8400

1. **Copy your new 8400_new.zip into the directory where you originally found 8400_new.zip in step 1 on page 1.**

It is wise to keep a backup copy of your work.

2. **Update your 8400 in the usual way, using your new version of 8400_new.zip.**

After your 8400 reboots, you should see your new presets appear as “Factory Presets.”

When you go to LESS-MORE (in Basic Control), the LESS-MORE control should be functional (i.e., not grayed-out). Test your preset’s LESS-MORE characteristics by running the LESS-MORE control throughout its entirely range while listening to the program material of your choice.

You can now disseminate your work to other 8400s by distributing your 8400_new.zip file and advising others to replace their standard factory 8400_new.zip file with it.

If you discover any actual errors in this document, please let the author know at bob@urban.com. However, please be aware the Orban Customer Service can provide no technical support for it, so please don’t ask ☺.