

Kurzweil PC2 Series

Musician's Guide Supplement

For Version 3.0 Operating System Software

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KURZWEIL
Music Systems

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Version 3 Software for the PC2

Introduction

Thanks for your interest in Version 3.0 operating system software for your PC2. Version 3 works in all models of the PC2. Before installing your new software, please read this document (or at least the introduction) carefully.

The main feature of Version 3 software is support for the PCR-1 sound expansion option (Orchestral and General MIDI 1 programs/setups). In addition, Version 3 fixes a few known bugs in the operating system and soundware, and introduces new features that make the PC2 easier to use.

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Do I Need Version 3?

If your PC2 has the PCR-1 option, you already have Version 3 operating system software, and you don't need this update. The files you downloaded from our website are the same as those on the CD-ROM that comes with the PCR-1 option.

If you have Version 1 or Version 2 operating system software in your PC2, and you've been affected by an operating-system bug that you can't work around, Version 3 may fix it (see *Bug Fixes Since Version 2* on page 11 for a description of bug fixes in Version 3).

If you haven't been having any problems, you don't *need* to install Version 3, but you may want to install it anyway to keep your instrument up to date. Bear in mind, however, that the General MIDI features described in this document aren't relevant unless you've installed the PCR-1 option.

Installing the Version 3 Operating System

We're assuming that all the files you'll be installing are already loaded to your sequencer or computer. If this isn't the case, make sure that all the files that you downloaded from our website are unzipped (uncompressed) and accessible.

Updating to Version 3 involves completing six tasks:

- Preparing your sequencer
- Saving objects (optional, but recommended)
- Launching the boot block
- Installing the operating system (OS) file
- Installing the basic soundware objects
- Performing a hard reset

Preparing Your Sequencer

You'll need either a standalone sequencer, or a personal computer with a MIDI interface and sequencing software.

1. Connect a MIDI cable from your sequencer's or computer's MIDI Out port to the PC2's MIDI In port.
2. Launch the sequencer application.

Saving Objects

Updating the OS requires you to do a hard reset before resuming normal operations. This deletes all user-defined information from the PC2's memory. You should dump all user-defined programs, setups, and effects to an external memory source (like a computer sequencer) before updating your software. Otherwise, they'll be lost.

See the programming chapter in your *PC2 Musician's Guide* if you need information about dumping programs and other objects.

Launching the Boot Block

The operating system software is a MIDI (.mid) file that you can install using a standard hardware sequencer or a computer with sequencer software. To enable the PC2 to receive the file from the sequencer, you'll use a special mode called the *boot block*.

1. If the PC2 is on, turn it off.
2. Turn the PC2 on, and watch the display.
3. When you see `Please wait...`, press and release the **Panic** button (for keyboard models) or the **Edit/Store** button (for rack-mount models). The display shows several messages as the boot block launches. The first message is `Running boot`, followed by `Waiting for scanner`, followed by `PC2 Boot Loader version n.nn`. Check the version of the boot block when you see this message. You must have Version 2.0 or later of the boot block to be able to install Version 3 software.

If you have an earlier version of the boot block, you can download the most recent version from our website (the address is on page ii). Appendix A of your *PC2 Musician's Guide* contains instructions for updating your boot block.

After the display shows the boot block version, you'll see `Main Menu` in the top line of the display, and `Install engine` in the bottom line. The boot block is now running.

Installing the OS

1. When the boot block has finished launching, press **Yes** (this selects the `Install engine` option, which is the first option in the boot block menu). The display changes to `Install engine via MIDI`.
2. Press **Yes** again. The display changes to `Waiting for MIDI`.
3. Using the sequencer or computer, find and open the appropriate MIDI file for your PC2. Look for files whose names start with `pc2k...` (for "keyboard operating system") or `pc2r...` (for "rack-mount operating system"). The three digits after the `k` or `r` indicate the version number.
4. Play the MIDI file. The top line of the display shows `SYS3-0 file 1 of 1`, and the bottom line shows `segment 1 of 8`. When the display shows `Done`, stop the sequencer if it doesn't stop automatically. As soon as you see `Done`, you can go on to the next step.
5. If your instrument does *not* contain the PCX-1 Polyphony Expansion option, your OS installation is finished, and you can install the soundware objects (page 6). If your instrument *does* contain the PCX-1 option, you need to update its operating system software as well. Repeat Steps 3 and 4 above, but this time install the file `pc2pnnn.mid` (note the `p` for polyphony in the filename). When you're finished, you're ready to install the soundware objects.

Installing the Soundware Objects

The soundware objects are also part of the PC2 sound engine, so you'll continue to use the `Install engine` in the boot block menu.

We're assuming that you've just finished launching the boot block, and that the bottom line of the display shows `Install engine`. If instead you've just finished updating the operating system software (and the display shows `Install engine via MIDI`), start at Step 3. If the display shows `Done`, start at Step 4.

1. Press the **Left** or **Right** cursor button until you see `Install engine` in the bottom line of the display.
2. Press **Yes**. The display changes to `Install engine via MIDI`.
3. Press **Yes** again. The display changes to `Waiting for MIDI`.
4. Using the sequencer or computer, find and open the basic objects file (`pc2snnm.mid`).
5. Play the MIDI file. The top line of the display shows `SYS3-0 file 1 of 1`, and the bottom line shows `segment 1 of 13`. When the display shows `Done`, stop the sequencer if it doesn't stop automatically. As soon as you see `Done`, you can go on to the next step.
6. If your instrument does *not* have the PCX-1 Polyphony Expansion option, your installations are finished, and you can do the hard reset (page 6). If your instrument *does* have the PCX-1 option, you'll need to install soundware objects for the PCX-1 board. Continue with Step 7.
7. Repeat Steps 4 and 5, but this time use the file `pc2spnmm.mid`.
8. Press **Cancel** to return to the boot block menu.
9. Do a hard reset, as described below.

Doing a Hard Reset

This procedure assumes that you're in the boot block menu. If you aren't, relaunch the boot block (see page 5 if you need a reminder), then proceed.

1. Press the **Left** or **Right** cursor button until you see `Hard RESET` in the bottom line of the display.
2. Press **Yes**. The display prompts you with a question: `Erase RAM objects?`
3. Press the **Right** cursor button. This performs the hard reset and returns you to the boot block menu.
4. Follow the instructions in *Returning to Normal Operations From the Boot Block Menu* below.

Returning to Normal Operations From the Boot Block Menu

1. Press the **Left** or **Right** cursor button until you see **Run engine** in the bottom line of the display.
2. Press **Yes**. After a few seconds, you'll be back in a performance mode. You're now ready to verify the software installation.

Verifying the Software Installation

1. Press the **Global** button to enter the menu of global parameters.
2. Press the **Right** cursor button repeatedly until you see the parameter named OS Version. The version number in the display should match the version number in the name of the operating system file you installed.
3. Press the **Right** cursor button repeatedly until you see the parameter named Int Sound Ver (Internal Sound Version). The version number in the display should match the version number in the name of the basic soundware objects file you installed.

See the troubleshooting section below if any of the steps in the verification procedure has given you the wrong result.

Troubleshooting for Software Updates

You're not likely to have problems updating your software. In fact, there are very few things that can go wrong:

Display is Stuck at Waiting for MIDI

The MIDI signal isn't getting to the PC2. Make sure that the computer or sequencer's MIDI Out is connected to the PC2's MIDI In. Make sure the cable isn't defective. Try another cable if necessary.

Display Never Shows Done

It's possible that the PC2 isn't receiving all of the MIDI file data. Try playing the MIDI file at a slower tempo.

It's also possible that there's an issue with your MIDI interface. Installing the latest version of your interface's USB driver (available from the interface's manufacturer) may help. You might also try a different MIDI interface.

Version in Display Doesn't Match Version of File

This applies to operating system software *and* soundware objects. If the version number you see in the display doesn't match the version number on the file you installed, the file didn't get installed properly.

Try installing the file again. Watch the display carefully to make sure the instrument is receiving data from the sequencer. make sure that you see **Done** in the display before stopping the playback of the file.

If you downloaded or copied any of the files, one or more of them may be corrupted. Try downloading the files again. The address for the Kurzweil website is on page ii.

If you're still having problems, consult a Kurzweil dealer or service center.

PC2 Version 3 Operating System Features

The new features in the Version 3 operating system fall into the following categories:

- GM Control Parameters. 8
- New Parameters for Displaying Software Versions 9
- New Demo Features. 10

GM Control Parameters



Note: Unless you've installed the PCR-1 option in your instrument, you won't be able to make use of the General MIDI features. You may want to skip this portion and turn to *New Parameters for Displaying Software Versions* on page 9.

The parameters that control the PC2's GM functions are in the Global menu. There are three of them: General MIDI, GM Bank, and GM FX Scale.

General MIDI

Use this parameter to turn GM mode on and off. Set the value to **On** to activate GM mode; set the value to **Off** to return to normal operation. When you turn your PC2 off, it remembers whether GM mode was on, and starts up in the same state the next time you turn the PC2 on.

You can also activate/deactivate GM mode with a System Exclusive (SysEx) message to the PC2. To turn GM mode on via SysEx, send this message:

```
F0 7E <device ID> 09 01 F7
```

The value you use for <device ID> must match the value of the Device ID parameter in the Global menu. By default it's **0**, so unless you've changed it, your SysEx message should include **00** for <device ID>. You can also use **7F** as the Device ID to broadcast to all receiving instruments.

To turn GM mode off via SysEx, send this message:

```
F0 7E <device ID> 09 02 F7
```

What Happens When You Turn GM Mode On

When General MIDI is **On**, the PC2 sets all MIDI channels (except Channel 10, the Drum channel) to play programs in the bank where the GM programs are stored (Bank 2, Exp1 if you installed the GM programs into ROM, or Bank 1, User if you loaded them into RAM; see *GM Bank* below for more information). Channel 10 plays programs in Bank 7; these are drum programs, with program change numbers reconfigured to match the GM specification.

To ensure the proper dynamic response to GM files, the PC2 adjusts the receive velocities using a specialized touch map. If you have a PC2R, you'll see this value if you select the Touch parameter in the Global menu (it doesn't show up on keyboard models).

Because GM handles effects levels differently, the PC2 scales down the levels of FX A and FX B. You can adjust the amount of scaling manually, using the GM FX Scale parameter (described on page 9).

What Happens When You Turn GM Mode Off

When General MIDI is **Off**, all MIDI channels are reassigned to play Bank 0 (Int), Program **000**. The programs in Bank 7 return to their normal configuration; the value of the Touch parameter returns to its former value (which the PC2 remembers if you turn the power off); the effect levels return to their former state.

GM Bank

The GM Bank parameter lets you manually specify the bank where your GM programs are stored. The default value is **Auto**, which means that when you turn GM mode on, the PC2 checks for the GM programs and automatically sets all MIDI channels (except 10) to play programs in the bank where it finds the GM programs. The display shows you which bank is found (Exp1) in the example below, so the display looks like this:

```
Global Settings
GM Bank (Exp1): Auto
```

You'll almost never need to change the default value of Auto for GM Bank. In fact, there's only one such case: when you've loaded your GM programs into RAM instead of installing them into ROM, and you've deleted Program **127 Gunshot** (which is the program the PC2 looks for when it checks to see which bank contains the GM programs). In this case, when you turn GM mode on, the PC2 is unable to select the right bank automatically (and the GM Bank parameter shows **None** in parentheses). Set the value of GM Bank to **User**, forcing the PC2 to play the programs in the User bank. The display still shows **(None)** for GM Bank, but you have access to the GM programs.

GM FX Scale

With this parameter you can control how much the effect levels are reduced when you're in GM mode (which is done to make the effect levels consistent with GM instruments). By default, the value is **25%**, which means that the values of Controllers 93 FXAWet and 91 FXBWet are multiplied by .25, and the effects are 75% drier. Increase the value of GM FX Scale to make the effects wetter; reduce it to make them drier.

New Parameters for Displaying Software Versions

The Global menu contains three new parameters: Int Sound Ver, Exp1 Ver, and Exp2 Ver. These parameters can't be edited; they're there to show the versions of the soundware files installed in your PC2.

Int Sound Ver shows the version of the basic (Internal Voices) soundware objects.

Exp1 Ver shows the version of the PCR-1 soundware file (if it's installed); the value of Exp1 Ver includes either **Orch** or **GM** to indicate which program set is installed in ROM.

Exp2 Ver shows the version of the PCR-2 soundware file (the PCR-2 option is not released as of this printing).

New Demo Features

We've added a few features to the PC2's Demo mode. It's now easier to find and play the demo songs. You can also load the songs into RAM, save (dump) them to an external device (a computer sequencer application, for example), and delete them from RAM.

Playing the Demos

1. Go into Demo mode. On keyboard models, press **Sound Select 14** and **Sound Select 16** at the same time; on rack-mount models, press the **MIDI Receive** and **Global** buttons at the same time. The top line of the display shows **DEMO:** followed by the ID and name of the currently selected demo song.
2. Use the Alpha Wheel or the **Minus** or **Plus** button to select the demo to play.
3. Press **Enter** to play the current song, or **Cancel** to return to a performance mode.

The IDs of the demo sequences correspond to the banks where they're stored:

1–9	Bank 0 (Internal)
10–19	Bank 1 (User)
20–29	Bank 2 (Exp1)
30–39	Bank 3 (Exp2) (for future release)

Loading Demos into RAM

You can use a standalone sequencer or a computer with sequencer software to load any PC2 demo song into RAM. PC2 demos are specialized .MID files that contain SysEx data. Once a demo song is loaded into RAM, you can play it back using Demo mode.

1. Connect a MIDI cable from your sequencer's or computer's MIDI Out port to the PC2's MIDI In port.
2. Launch the sequencer application.
3. Open the file with your sequencer, and play it. The PC2 recognizes the SysEx data and loads the song into RAM.

Deleting and Dumping Demos

You can delete demo songs to gain RAM space, and you can dump them to files via SysEx so that you can load them again at a later time if necessary.



Note: RAM demos can be deleted or overwritten, but ROM demos are permanent, and can't be deleted.

1. Go into Demo mode. On keyboard models, press **Sound Select 14** and **Sound Select 16** at the same time; on rack-mount models, press the **MIDI Receive** and **Global** buttons at the same time. The top line of the display shows **DEMO:** followed by the ID and name of the currently selected demo song.
2. Use the Alpha Wheel or the **Minus** or **Plus** button to select the desired demo. If you're going to dump the demo, make sure you have a MIDI connection between the MIDI Out of the PC2 and the MIDI In of the receiving device.

3. Press **Store** (on keyboard models) or **Edit/Store** (on rack-mount models). The PC2's display asks you if you want to delete the current demo.
4. Skip to Step 5 if you want to dump the demo. Otherwise press **Enter** to delete the demo. When it's gone, the display shows **Deleted!** If you decide not to delete the demo, press **Cancel** instead of **Enter**; this returns you to Demo mode.
5. Press the **Right** cursor button. The display asks if you want to dump the current demo.
6. Press **Enter** to start the dump. On keyboard models, the LED in the **MIDI Xmit** button lights to indicate the data flow. When the dump is finished, the display shows **Demo Dumped!** briefly, then returns to the **Dump Demo?** prompt.

Bug Fixes Since Version 2

Sample Playback

Version 3 fixes a sample playback problem that occasionally caused programs containing reverse-playback samples to trigger the wrong sample when there were many notes active.

Volume of High Notes in Electric Piano Programs

The following programs have been adjusted to prevent a drop in volume in notes from C 6 up.

<i>Bank</i>	<i>ID</i>	<i>Program</i>
0	017	<i>Serious Classic</i>
0	019	<i>Hard E Piano</i>
0	028	<i>Wurly Road</i>
6	016	<i>Mello E Piano</i>
6	017	<i>Tines Square</i>
6	018	<i>Brunch In Seoul</i>
6	020	<i>Barking Tines</i>

Fixes to Other Programs in Bank 0

In Programs **110 Upright Bass 1** and **111 Upright Bass 2**, pitch bend no longer affects the ride cymbal. In Program **069 Touch Strings**, Note B 7 no longer distorts.

Mono Pressure Remap

When your PC2 is in MIDI Receive mode, the MIDI Controller Mono Pressure now gets remapped to the zones in a setup like other Controllers.

KB3 Percussion and Non-KB3 Programs

Switching to Internal Voices mode from KB3 mode now resets the appropriate MIDI Controllers (specifically Controller 73, which is the **Perc** button in KB3 mode) so that they no longer affect programs in Internal Voices mode (for example, the attacks on some guitar programs).

Switch Pedal 1 in the Internal Setup

Switch Pedal 1 is now assigned to None for Zones 3 and 4 in the Internal Setup.

LCD Info in KB3 Editor

The display now updates to show the correct parameter categories when you scroll back and forth between KB3 Envelope parameters and KB3 Percussion parameters (specifically Perc Ld/Fast).

Demo Playback

Demos now play back properly regardless of various settings in Internal Voices mode (specifically, enabling AutoSplit and/or soloing a zone).

SysEx and the PC2R

When loading objects into the PC2R via SysEx, the LED in the **MIDI Recv** button now stays lit steadily during the Sysex message (instead of just flashing occasionally) The LED goes off when the SysEx message is complete.