

y POWER USER

MUSIC PRODUCTION and PERFORMANCE With the S90

Assigning Your PLG150 Plug-in Board in a MIX Assigning Your PLG150 Plug-in Board in a Performance

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PLG150 Series boards (PLG150-AN, PLG150-DX, PLG150-PF, PLG150-VL, PLG150-DR and PLG150-PC) can be installed in any slot configuration. A consistent arrangement is recommended, as the bulk files remember which slot the file was created from.

PLG150 Series Plug-in Boards are each single part boards. What this means is that they are capable of contributing **one** sound at a time where ever they are used within the Modular Synthesis Plug-in System host product. For the S90, the host in this case, each PLG150 Series board can be used in a very similar fashion to the Internal sounds. However, there are a few things that may cause you to scratch your head, if you are unaware of just how the PLG boards integrate into the host product. For example, the boards are all synthesizers on their own, but they don't have screens, sliders, analog audio outputs, etc. It doesn't even have buttons for you to enter information. What it does have is the chip set necessary to do the calculations to deliver its sound. Each board can be unique in terms of its sound-generating engine. The PLG boards will be using the host product for its screen (to communicate), its sliders to input data, its controllers to perform real time changes, its converters for translating its results to the analog output (in fact for all audio routing), and its effects and so on.¹ It is a rather complex network. But the S90 can address the boards. It has the ability to detect, and automatically load 64 Preset sounds to the PLG slot for each board it detects. Each 150 board represents a different technology with an entirely unique set of parameters. Each PLG150 series Voice will access waveforms on its own board. The S90 can store and recall Voices that "point" to specific waveforms on your PLG board. The S90 will memorize the Voice data (pointers), the PLG board slot number and maintain all this data. Take your time when seeking to route and learn about using the PLG boards in your setup. This guide will help you understand why and how to setup what you need.

The single PLG150 Voice per board can be played in Voice mode, layered with other sounds in a Performance, or as a Part within a Mix. Although each PLG150 series board has a unique story, the way in which they work within the S90's various modes will be pretty much the same. The current 150 series boards are the PLG150-AN (analog Physical Modeling), the PLG150-DX (Frequency Modulation), the PLG150-PF (AWM2 sample playback), the

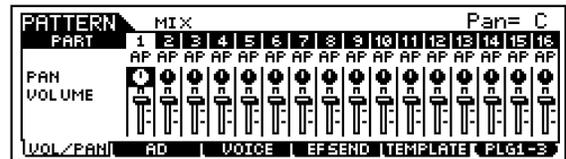
¹ Additionally, the boards rely on external computer editors to fully address parameters when building Voices from scratch. The three "pure" synth boards (AN, DX and VL) can be fully edited from scratch. The PF, DR and PC are sample playback and therefore the wave data is fixed.

PLG150-DR (AWM2 Drum Kit), the PLG150-PC (Latin percussion kits) and the PLG150-VL (Virtual Acoustic Physical Modeling).

Using PLG150 Voices in a MIX

The S90 by itself (using just the internal sequencer) is capable of 16 Part Multi-timbral operation. The PLG boards have their own polyphony and are basically *separate* synthesizer engines that will use the host's hardware. Before you expanded the S90 with PLG boards, the 16 Parts of a MIX were always occupied by internal sounds. When viewing the MIX screen you are looking at PARTS 1-16 in the MIXER.

- Press SEQ/PLAY, then F6 MIX



When you installed your PLG 150 board(s) you are able to toggle between viewing and editing PARTS 1-16 or PLUG-In slots PLG1-3 via the [F6] button.



Press F6 now, and get used to switching the view from 1-16 (Internal) and PLG1-3 (Plug-in slots 1-3). What you are going to do when you want to assign a PLG sound is either **layer** it with or **replace** one of the internal S90 sounds. As we stated, by default (when you first call up a new MIXING page) Parts 1 through 16 are occupied by internal sounds assigned to MIDI channels 1-16. This is quite natural and basic but must be stated because what you want to do now that you have PLG boards is decide what MIDI channel do you want to address them. The PLG boards default to MIDI channels 1, 2 and 3 when you place the board in slot 1, 2 or 3 respectively. You can reassign them to any MIDI Channel, as necessary. It is guaranteed that whatever MIDI channel you choose will already have an internal S90 sound assigned – all 16 channels are currently used. If, for example, you want to place your PLG150 board on MIDI channel 10, you will need to make a decision. "Do you want it to *share* the MIDI channel with the current sound assigned to MIDI channel 10? Or do you want to *replace* the MIDI channel 10 sound (the sound on PART 10)?"

Why PARTS?

You begin to appreciate the PART as a useful entity within the S90 when you realize that a Voice can be placed in a Performance or used in a MIX and you can edit it via these so called PART parameters. Instead of editing the Voice directly you edit these PARTS. And, you know what? It does **not** edit your Voice for any other Performance, or MIX. All your PART edits are "local" to the current Performance, or MIX location. In many competing products, any change that you make to the String sound when you combine it or use it in a multi-timbral setup will affect every other use of that String sound. Bummer! The PART parameters are what allow the S90 not to have to alter everything to accommodate the current tweak. When you understand PARTS, they really do become a necessity.

Replace it:

If you want to replace the internal AWM2 sound, you will need to know how to assign the PLG150 Part a MIDI Receive Channel and then deactivate the MIDI Receive Channel on the internal sound assigned to the selected MIDI channel. (This will require that you drop into MIXING EDIT and that you are comfortable toggling back and forth via the F6 button. Recognize that you can do a lot to a mix without dropping down to EDIT). Let's take it a step at a time. But first...a little more background on "PARTS":

When you first call up the MIX view you can make quick changes to your basic mix such as Volume, Pan, Effect send, and you can even select a Voice. But you need to drop into MIX EDIT (both LEDs lit) to change the PART parameters such as MIDI receive channel assignment, the polyphony mode, the Arpeggio switch, Output assignment, filter cutoff and resonance, portamento, controllers, note range, Amplitude and Filter envelopes, etc. These are the PART edit parameters that store changes to the VOICE (via offsets) without having to edit the original Voice directly. Therefore by storing just these offset parameters to your MIX it is possible for the S90 to apply them without changing the original Voice data. It also is possible to swap out the VOICE without changing the offsets – this allows you to easily try different Voices in the same PART without having to redo all the settings.

Let's clear up one other point right now. PARTS, TRACKS and CHANNELS, it is important that you are clear on the difference.

- A PART is a set of OFFSET parameters that can be saved with a Performance, or MIX. Each Part is assigned a Voice. They allow you to effectively edit a sound 'locally' without making a permanent change to the original Voice. PARTS of a MIX are set to receive via MIDI channels. PARTS of a Performance all receive on the Basic MIDI Receive channel.
- A CHANNEL is a MIDI communication bus, 1-16. In the case of a sequencer each track sends (transmits) data on a specific MIDI channel. In the case of the tone engine (receiving device), each PART of a multi-timbral MIX is assigned a MIDI channel to respond to. A basic MIDI setup has 16 MIDI channels. A multi-PORT system will have multiple 16 channel sets.
- A TRACK is a storage place in the sequencer and transmits on a MIDI channel to a PART. In a multi-PORT system a track is assigned one of sixteen MIDI channels of a PORT.

Each PART can be individually assigned a MIDI channel on which to receive incoming data. You can, in fact, assign several Parts to the same MIDI channel. Doing so will mean that when you transmit on that MIDI channel you can play multiple PARTS simultaneously. This is exactly what occurs when you COPY a Performance into a MIX. (PF COPY).

How do you know what MIDI channel you are transmitting on? Before you put plug-in boards in the S90 this was always easy to answer, because MIDI channel 1, PART 1 and Track 1 were always in alignment. You didn't need to know the difference. But let's get this down NOW – because now you will need to know the difference. The S90 keyboard can be directed to play any of the PARTS. Even though you can only highlight one division in the screen at a time, it is possible to play multiple sounds simultaneously. This is accomplished by assigning multiple PARTS to a MIDI channel, then transmitting on that MIDI channel.

	PART01	PART02	PART03	PART04
Mono/Poly	Poly	Poly	Poly	Poly
ArpSwitch	on	on	on	on
ReceiveCh	1	1	1	1

HERE IS THE RULE:

Your transmit channel is determined by the OUTPUT CHANNEL of the **TRACK** you select.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
OUT CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PORT	off															

Referring to the two screens above, you can play the four PARTS assigned to MIDI Receive

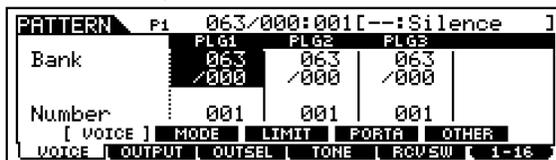
Channel 1 (top screen) if, and only if, you select the TRACK set to transmit to them, in this case track 1 (bottom screen). If you reassign the sequencer TRACK to a different MIDI channel, then that is the channel the keyboard will communicate on. The Track's OUTPUT Channel settings are found by pressing F3 OUTPUT (bottom screen above). This is why when you illuminate the TRACK SELECT button you can select any one of the sixteen tracks. Your MIDI channel output will be dependent on the OUTPUT CHANNEL assignment of the TRACK NUMBER that you select. If, for example, you assign your PLG150 board to receive on MIDI channel 12, then in order to communicate with that PLG150 board you will need to store the MIX and select the TRACK that is assigned to transmit MIDI channel 12.²

Do not proceed without a clear understanding of this point. The division in the screen or PART number does not determine what MIDI channel you are transmitting on when you are in a MIX. The OUTPUT Channel of the track set to transmit to that PART determines it.



Setting the PLG slot to a MIDI channel:

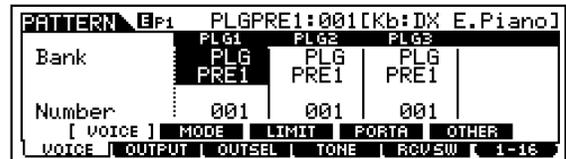
- Press MIXING/
- Press EDIT
- Press TRACK 1 to select PART Edit
- Touch the F6 button to toggle to PLG1-3 view. The Parts are labeled PLG1, PLG2 and PLG3, as shown below.



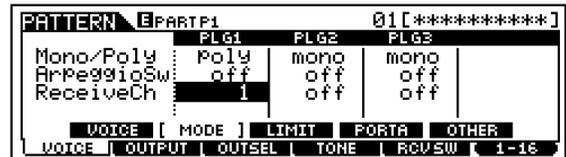
- Select the sound that you want to use. It is very important to select a bank associated with the PLG board in slot 1. Select the board's "PLG PRE1" bank³ and Program Number 001.

² -Whichever track(s) that happens to be.

³ The PLG PRE 1 bank is automatically loaded when the S90 detects a PLG150 series board on power up. You know, when you power up it says "Checking Plug-in boards..." If it finds a board it loads 64

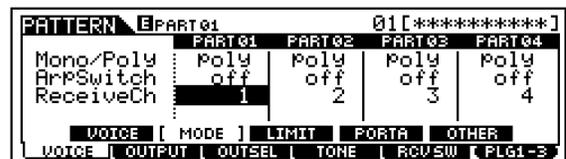


- Select F1 Voice/ SF2 Mode
- The Receive Channel for a PLG150 series board in Slot 1 defaults to MIDI Channel 1. The Receive Channel for a PLG150 series board in Slot 2 defaults to MIDI channel 2. The Receive channel for a PLG150 series board in Slot 3 defaults to MIDI channel 3. You can, of course, choose any MIDI channels you require.

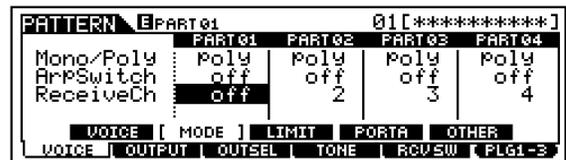


When the Receive Channel is set to channel 1, the PLG1 sound will be "layered" with the S90 internal sound(s) associated with MIDI channel 1 (PART 01 by default). To turn off the internal PART 1 sound you would set its MIDI Receive channel to OFF:

- Touch the F6 button to toggle to the 1-16 view.
- Select F1 Voice/SF2 Mode



- Set the Receive Channel of the internal PART01 to OFF.



You can now play the PLG150 sound "in place of" the internal sound. If you had assigned the PLG board to MIDI channel 12, then you would go to any PART set to receive on MIDI channel 12 and deactivate its MIDI Receive channel, thereby replacing the internal sound with the PLG sound. And you would need to transmit from a track assigned to MIDI channel 12 to play the PLG150 sound.

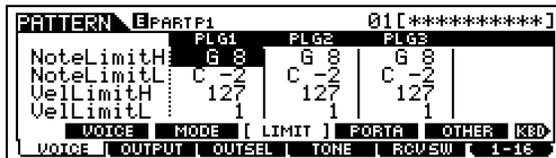
VOICES into a PRESET ROM location determined by the board it detects in the slot.

- Toggling back, via F6, to the PLG1-3 view, you can do further tweaks to the PLG sound.
- STORE your MIX

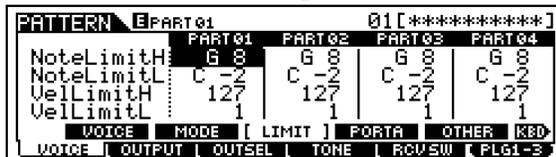
If the internal PART you replace is in a different screen location then the PLG board you may notice that you cannot hear the PLG board until you toggle back to the internal Parts and select the track of that PART. This is normal. It will only seem odd while you are editing. Once you store your setup transmit selection will always be done the TRACK SELECT function.

Layer it/Split it:

If you want to layer or split the PLG sound with the internal sound, simply leave both Parts with their MIDI channels assigned. You can then set the Note Limits, Volumes, pan positions, controller receive switches, etc., of each individually.



You can set the Note range for the PLG Part



You can set the Note range of the internal Part

- STORE your settings. And exit EDIT

MIXING: VOICE Selection and BANKS

Let's now take a look at some of the MIX parameter views and learn something about the Bank Select and Voice selection functions available with the PLG Boards.

- From the MIXING mode



In the screen above, P1 (DX board) is set to the MSB/LSB bank 63/70, the P2 (VL board) is set to bank 63/73 and P3 (AN board) is set to bank 63/76. Here's what you need to know about these BANKS: The MSB and LSB numbers indicate the kind of Voice you are recalling. If the PLG slot MSB number is 63 this

denotes a PLG Voice that has been integrated with S90 parameters and controller routings...it is either a "Plug-in Preset Voice" loaded from S90 ROM when powered up or it is a "Plug-in User Voice" in one of the 64 locations for user Voices per Slot. Each of the PLG150 series Boards loads in a bank of 64 PRESETS Voices and the User can store 64 USER Voices – these are Voices that point to waveform data on the Boards. (The exception is the PLG150-VL Board, which loads in **three** banks of 64 (192) Voices; One for each of the playing styles to control that particular PLG Boards technology. In each case the bank is referred to as PLGPRE1, except the PLG150-VL, which will have a PLGPRE2 and PLGPRE3.

PLUG-IN PRESET Voices:

63/70 This MSB/LSB⁴ number will always address the PLG PRE 1 (Pp1 or Plug-in Preset 1) bank of the PLG150 board that is placed in slot 1 – it matters not which board only that it is a PLG150. The PLG PRE1 bank Voices are loaded at power up ("Now checking plug-in boards..."). The data for them is stored permanently in the S90 ROM and is loaded when a board is detected in slot 1. In the example above, the DX board in P1, was detected and therefore the S90 would load 64 Voices intended for the PLG150-DX into this reserved bank. If it had detected a different board it would have loaded the Voice data appropriate for that board. Therefore, the bank 63/70 will always reference the PLG150 board you place in slot 1.

63/71 PLG PRE2 (VL only) in slot 1*

63/72 PLG PRE2 (VL only) in slot 1*

63/73 is the PLG PRE1 (Pp1) bank for any PLG150 board placed in slot 2.

63/74 PLG PRE2 (VL only) in slot 2*

63/75 PLG PRE3 (VL only) in slot 2*

63/76 is the PLG PRE 1(Pp1) bank for any PLG150 board placed in slot 3.

63/77 PLG PRE2 (VL only) in slot 3*

63/78 PLG PRE3 (VL only) in slot 3*

- *PLG150-VL has three PLG PRE banks, each containing 64 Presets. This was necessary with VL technology in order to include a preset bank setup for TOUCH EG play, one for Velocity play and one for

⁴ These two numbers are used by the MIDI system to identify different Voice banks. Banks can contain up to 128 sounds each. You will use these MSB/LSB bank numbers when you are inserting a PLG board into a MIX.

Breath Control play. That is why bank numbers 63/71-63/72, 63/74-63/75 and 63/77-63/78 may also be seen, as possible PLG PRE 2 and PLG PRE 3 for a VL board that might be in that slot.

- If you have a PLG150-PF, DR or PC Board, it would inherit one of three banks numbers for its 64 PLG PRE 1 sounds: 63/70 if in slot 1; 63/73 if in slot 2; or 63/76 if in slot 3.

The thing to know about the PLG PRE bank Voices is that they are completed PLUG-IN VOICES, which means they have been integrated with S90 parameters, controllers and effects - as opposed to BOARD VOICES which are entirely resident on the PLG board itself.

PLUG-IN USER: PLG_USR Voices

These are defined as Voices that you create using the PLG board data as the raw material (source data), add S90 controllers, and routing to make a custom user version called the "PLG_USR" (Pu). These get saved in an ALL DATA and in the ALL VOICE file types.



63/24 this is a PLG_USR or PLUG-IN USER Voice bank. After you create or tweak a BOARD Voice by applying S90 effects and controller routing to it you will store it to one of 64 RAM locations that S90 reserves for each PLG150 Slot. This bank is the PLG_USR and will reflect the technology of the board in that slot. Above you see Pu1 or PLG_USR 1 under the P1 slot.

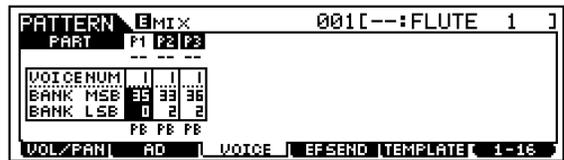
63/25 this is a PLG_USR Voice bank for 64 Voices for the board in slot 2.

63/26 this is the PLG_USR Voice bank for 64 Voices for the board in slot 3.

BOARD VOICES:

Board Voices are the raw data out of which you can construct your own custom PLUG-IN USER Voices. These banks do not begin with MSB 63 and have not been integrated with S90 effects, controllers and other routing but are resident entirely on the Board in question. Again the S90 will address these banks through the slot containing the board. If a bank (MSB/LSB) is selected for a slot that does not contain that

board, no sound will be heard.



In the view above you see the three PLG boards in our example each pointing to a native BOARD VOICE bank. The size of banks and operation of each of the boards in our example is slightly different and depends on the technology involved.

PLG150-DX

35/0* is a bank specific to the PLG150-DX board. You see the "PB" which denotes PLG BOARD bank. On the DX board there are 64 USER locations for custom (from scratch) DX sounds in this bank. Sounds are bulked to this bank in two separate loads 1-32 and 33-64⁵. Use the DX Simulator Voice Editor to create and bulk (from scratch) sounds (or directly from a DX/TX product). There are several banks of presets and some 912 DX Voices total among the various DX banks. However, it is significant to note that "35/0" is the bank that will contain any custom sounds you make in the DX SIMULATOR – all the others are Preset (fixed) banks.

35/1 is a bank specific to the PLG150-DX board. It contains 128 preset sounds.

35/2 is a bank specific to the PLG150-DX board. It contains 64 preset sounds.

XG banks – the other banks are setup for use with XG/GM protocol – meaning they are categorized as substitutes for XG/GM list Voices.

PLG150-VL

33/0 is a bank specific to the PLG150-VL board and contains 128 preset VL sounds setup for velocity play

33/1 is a bank specific to the PLG150-VL board and contains 128 preset VL sounds setup for breath control play.

33/2* is a bank specific to the PLG150-VL board. It is a PB or PLUG-IN BOARD bank. It contains 6 custom locations for actual new (from scratch) configurations of the real time physical modeling VL engine. These are created in the VL Expert Editor. The PLG150-VL has three other banks you need concern

⁵ The original DX had a 32 Voice limit. To maintain compatibility amongst all DX/TX products this Voice architecture has been maintained.

yourself with: 33/0 = 128 Preset 1; 33/1 = 128 Preset 2 and 33/3 = 64 User⁶

33/3 is a bank specific to the PLG150-VL board and a variety of your favorites (64 locations). It can be receive bulks directly from VL70-m tone module.

PLG150-AN

36/0 is a bank specific to the PLG150-AN board and contains 128 preset AN sounds.

36/1 is a bank specific to the PLG150-AN board and contains 128 preset AN sounds.

36/2* is a bank specific to the PLG150-AN board. It is the USER bank for your custom AN Voices. There are 128 USER locations in this bank. Use the AN Expert Editor to create and bulk to this bank your (from scratch) analog voices.

PLG150-PF

32/0 is a bank specific to the PLG150-PF board. There is no user "from scratch" RAM bank on the PF board (it would have to sample, after all). These are all preset piano waveforms (some with built-in programmed effects) that you can further enhance with S90 controllers and even add more effects. It contains 128 board sounds.

PLG150-DR

47/0* is a bank specific to the PLG150-DR board. There is no user "from scratch" Elements on the DR board (again it would have to sample). These are all preset DRUM kit waveforms that you can further enhance with S90 controllers and even add more effects. There are 8 USER KITS available. You select a KIT as a whole – then you can edit each note of that kit – you cannot create your own from scratch kits. It contains 80 KITS – each kit is a single Element. You can select a preset "kit" element and then edit everything about that kit element including using the board's 2 effect processors (REV and INSERTION). But the selection of drum waves comes as a complete set. This bank contains 8 locations for the user to create their own customized drum elements.

79/0 is a bank specific to the PLG150-DR board. It contains the 80 preset kit Elements

⁶ The 33/3 User VL bank is not for new models but for custom controller configurations of Preset and Custom bank sounds. With VL technology you need a degree in acoustics to program 'from scratch' but most of the programming that you will do is controller mapping and scaling to conform to *your* playing style. Much like saxophone players don't bang out new instruments but they do work on how the horn performs to there playing gestures.

from which you can edit each drum via the provided Plug-in Board Editor for PLG150-DR. These Kits can stand on their own, as they are because they use the PLG150-DR's generous onboard Board effects. This means you can allocate the native S90 effects for other duties.

PLG150-PC

47/1* is a bank specific to the PLG150-PC board. There is no user "from scratch" Elements on the PC board. These are all preset PERCUSSION kit waveforms that you can further enhance with S90 controllers and even add more effects. It contains 80 KITS – each kit is a single Element. You can select a preset "kit" element and then edit everything about that kit element including using the board's own 2 effect processors (REV and INSERTION). But the selection of waves comes as a complete set. This bank contains 8 locations for the user to create their own customized drum elements.

79/1 is a bank specific to the PLG150-PC board. It contains the 80 preset Latin percussion kit Elements from which you can edit each drum via the provided Plug-in Board Editor for PLG150-PC. These Kits can stand on their own, as they are, because they use the PLG150-DR's generous onboard Board effects. This means you can allocate the native S90 effects for other duties.

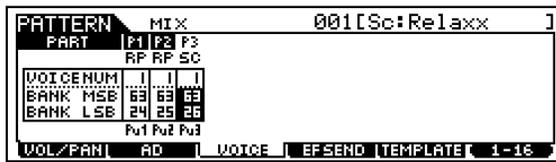
WARNING: The PLG150-PF, PLG150-DR and PLG150-PC boards are sample playback based and do not have their own RAM bank (samples take up too much RAM for that to be practical). Therefore you cannot technically build sounds on them "from scratch" – you can tweak the Elements that are provided. The Voice data of the three "pure" synth boards (AN, DX and VL) is very small compared to sample data. A typical bank of 32 DX Voices uses about 4Kb of memory.

Assign wisely...



Here is an example of a bad assignment. Look closely, under the banks you can see that "Pu3" is listed under Slot P1, "Pu1" is under slot P2, and "Pu2" is under slot P3. This is BAD. Nothing will sound. The PU denotes a PLG USER bank. But in the screen shot above, our musician, Homer S., has the USER Voices for the AN board in the slot for the DX board, the

DX data is pointing to the VL board and the VL data is pointing to the AN board. This is very bad and will result in NO SOUND! Doh!



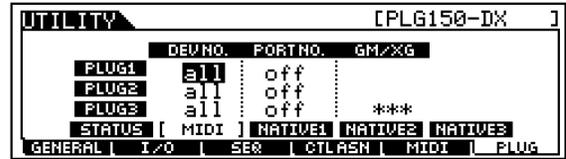
In the screen above, Lisa Simpson has correctly aligned the finished (MSB in the sixties) S90 PLUG-IN Voices to the proper boards. Pu1 = P1, Pu2 = P2 and Pu3 = P3. This is GOOD and will result in many hours of happy musical enjoyment. You don't need to know what technology is in which slot to recognize what bank goes to what slot.

What if I am using USB MIDI to connect the S90 to an external sequencer?

The USB (MIDI) connection opens up possibilities and will allow you to break the 16 MIDI channel limit. The S90 is limited to just 16 MIDI channels when you are using its internal sequencer to playback SMF (.mid). If you are sequencing with a computer sequencer, you may have the option of addressing the S90 on as many as 34 separate MIDI channels (maximum).⁷ You can address the PLG150 series boards via the USB multiple PORT system. Each MIDI PORT can address a set of 16 MIDI channels. So the internal sounds can be addressed from your external software on PORT 1 (fixed) and the PLG 150 series boards can be addressed on three separate MIDI channels of PORT 2, for example. Even though the PLG VOICE is assigned MIDI channel 1 it will not interfere with the internal S90 sound on MIDI channel 1, **if** they are being addressed on separate PORTS. This way you do not have to layer or replace the sound.⁸

⁷ This scenario would be one where you have the 16 Internal parts, plus the 16-part multi-timbral PLG100-XG plus two PLG150 series boards. You can address the S90 via USB's multi-PORT system.

⁸ We have purposefully ignored the PLG100-XG board up until now because you can only really make effective use of this MULTI part board through the USB MIDI interface with an external sequencer. It is recommended that you use an external sequencer when trying to take advantage of the additional 16 parts and 32 notes of polyphony.

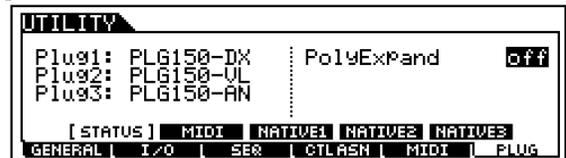


Each PLG board has settings for DEVICE NUMBER, and PORT NUMBER. The Device number will come in handy when you have two or more boards of the same technology. By giving each a unique device number ID you can address each independently with bulk data – allowing you to load different sounds to each independently. The PORT assignment will allow you to break the 16-channel limit when using an external sequencer. You can configure your external sequencer to address the 16 internal S90 Parts via PORT 1 (fixed) and the PLG Boards can be addressed on separate PORTS. In the scenario above, you could set the DX, the VL and the AN to Port 2, since each only requires a single MIDI channel (remember the PLG150 series are all **single** part boards). Therefore they would each only occupy 1 MIDI channel on Port 2.

USB supports multiple sets of 16 MIDI channels. Each PORT represents 16 discreet MIDI channels. Your external sequencer will let you assign MIDI channel and PORT assignment per TRACK. So once again it is the track and its MIDI channel assignment that determines what plays what.

Using PLG Voices in PERFORMANCE Mode

Each PLG150 series board is capable of contributing one sound at a time to a Performance. There can be a maximum of four Voices in a Performance. Each PLG board that you have can contribute one Voice



When you are ready to select sounds whether in a MIX or a Performance, you must point DX Voices through the slot containing the DX board, VL Voices through the slot containing the VL board and AN Voices through the slot containing the AN board, etc. This sounds natural and simple enough and what it means is that if you place a Voice that is AN parameters in the PART that has the DX board you will not get any sound. Each board must find the parameters that its technology understands. DX parameters are meaningless when placed in a position where it is looking at

an AN board and vice versa. The nice thing about the 150 series boards is they can go into any slot. But when you get into voicing and programming these unique technologies you will want to come up with a slot scheme that remains consistent. In other words, when you create Voices and save data, it matters where (what slot) the board is placed. Remain consistent. The easiest way: the order in which you purchased them.

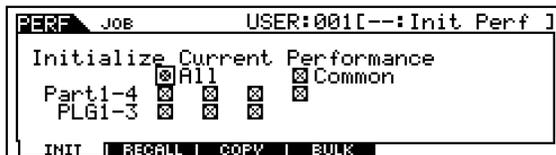
Let's put together a multi-technology Performance.

Creating a Performance using a PLG board and Native S90 sounds

In our example setup above, the **DX** board is in **slot 1** (hereafter referred to as P1 for Plug-in 1), the **VL** board is P2, and the **AN** board is P3.

When you are going to create a Performance, start by **INITIALIZING** a location. Any combination of Voices up to four can be selected. Only a single sound from each PLG150 board can be contributed to this Performance. But you could select 1 Internal and 3 PLGs (if you have three PLG boards). Or you could do 2 internals and 2 PLG boards (assuming you have 2 PLG boards) and so on - any combination up to four Voices. Let's learn something new about initializing a Performance.

- Press Performance/ JOB/ F1



The figure shows the selections you can make when you are setting up a Performance.

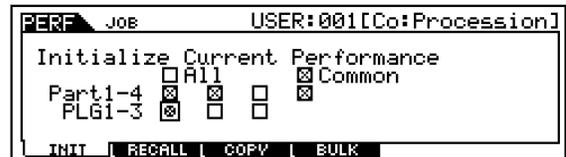
- Press ENTER/ YES to execute.

This creates an **INITIALIZED** Performance. This is important to do this initialization so that we are not inheriting any data from a previously programmed one⁹. When the **ALL** box is checked, all parts of the Performance are initialized, and only **PART 01** will be assigned. This gives us a Performance temporarily named **INIT PERF** with just one internal sound (3LayerS700) assigned to **PART01**; all others

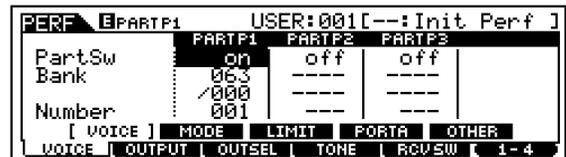
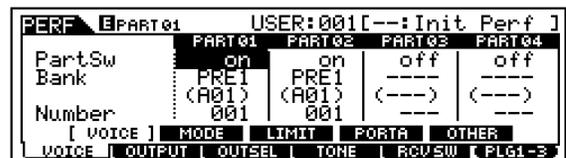
⁹ Later when you become comfortable with the **PART** parameters, you can work with existing Performance data.

will be turned OFF. That is the default **INIT**. Let's use a shortcut to setting up specific combinations.

Alternatively, clear the **ALL** box, but place an "X" in the **COMMON** box and the only the **PARTS** and **PLG SLOTS** you are going to use. Let's set up for 2 Internal parts and a **DX** sound. This would mean 2 "x's" on the **PART** line and 1 x in the **P1** box, as shown:



When you execute this **INITIALIZE**, it will give us the following setup: (use F6 to toggle).¹⁰



Of particular importance in the above two screens is the **PART SW** or Part Switch. This is where you can activate or deactivate a Voice in a PERFORMANCE. Notice the difference between the **internals** **PART01**, **PART02**, **PART03**, **PART04** and the **Plug-ins** **PARTP1**, **PARTP2** and **PARTP3**.

- Move the cursor down to the **BANK** and Select your **VOICES**. Internal sounds can be selected for **Parts01** and **02**, while a **DX** sound can be selected for **PartP1**. (Remember you cannot select just any sound in any slot, the board must be there to support your selection!)

You will not be able to recall anything but the proper sound through the assigned Part. It is that simple. You cannot recall **AN** or **VL** sounds in this **PART** as long as it is a **P1** Part. Knowing where to look and how to set up a Part for a particular slot is worthy of review.

¹⁰ Internal sounds will always be listed before PLG sounds. You can use **PART SW** as an alternative method in **EDIT**.

Let's take a look at the individual Parts and the parameters you have available to edit in this multi-technology Performance. Like most areas of the S90 you have two levels of EDITING: COMMON and in this case PART. The COMMON level, appropriately named, will be parameters that are common to all Voices in the Performance. Things like the name, master EQ, Effects, etc. You reach the COMMON level via a dedicated button (next to the Data Wheel). The Part level will let you address individual Voices within the Performance and you access them via the 1-4 buttons that are at other times the TRACK buttons. Pressing one of them during EDIT will recall all the data for that individual Voice within this Performance. You toggle to your PLG boards via the F6 button labeled (PLG1-3).

Remember as well, that one of the Voices in a Performance can recall its Voice mode Dual Insertion Effect, and its controller assignments. This will be determined by going to the COMMON level of EDIT and pressing F6 EFFECT/ SF1 CONNECT – to view the effect routing assignment for the Performance.

Splits and Layers

The only difference between a Performance that is a Split and one that is a Layer is the NOTE LIMIT parameter. You can define a region for a Part, which is convenient when you need to isolate a bass sound for left-hand play and a lead sound for right-hand play. These can get as complex as your imagination.

Once you have completed your edits you should STORE your work. Then make a backup to either SmartMedia card or to the SCSI drive of your choice. PLG USR Voices will remain in memory after power down but any custom board Voices must be either backup in the Voice Editor where you created them or to the special "PluginAllBulk" file for the slot containing your PLG150 board. See the Power User articles for details on each individual board.

Other PLG board considerations



In UTILITY you will find the F6 PLUG function when you add PLG boards to your S90. The NATIVE parameters refer to those 'native' to the particular type of PLG board you have

installed – remember they can be entirely different technologies. In the example, we have been using you can see above parameters concerning the PLG150-DX. Voice data from any original 6-operator FM synth can be bulked into the DX boards USER RAM bank (35/00) in two blocks of 32 sounds. The Velocity curve can be changed to even mimic the response of an original DX7.



This screen is parameters 'native' to the PLG150-VL technology. The WX LIP mode has to do with how it responds to the WX wind controller, if you were using one of those to play the VL board while in the S90. The Breath Mode parameter allows you to globally change the assignment for applying "Pressure" to the virtual mouthpiece/bow. This is the function that starts the oscillation of the model (the virtual horn or bowed string). When you use this global Breath Mode setting it will address each individual VL Voice that has been programmed to follow the "SYSTEM" Global settings¹¹. Breath Control can be written as controller 02 (BC) or converted to 11 (EXP). Breath Curve controls globally how much resistance there is to your blowing through the mouthpiece of the BC3.



There are several pages of parameters Native to the PLG150-AN board. Including Velocity Curve, and being able to "MORPH" via a controller from the current Voice to your favorite Voice. There are additionally (when you cursor right) four additional Assignable Control Numbers. After all it is analog and the more controllable parameters you have the better. These AC numbers let you apply the Control Sliders and Pedals of the S90 to any specific parameters within an AN Voice.

¹¹ When programming your own VL controller settings you can store the individual Voice with its Breath Control setting set to SYSTEM. This will allow you to change your mind and reprogram all your VL sounds at once. All those set to SYSTEM will follow the global setting.

Note: When you install the PLG150-DR or the PLG150-PC board, there are no NATIVE parameters. This is normal. The PLG150-PF's Native parameters will let you select from various Velocity response curves.

A Word on Storing/Bulking PLG VOICES

Although it may seem hopelessly convoluted the first time you encounter the PLG150 series Plug-in Boards, you will discover that you **can** learn to manage them with success once you understand what is going on. If all the technologies were the same it would, quite naturally, simplify things. But that is not really the goal here. The goal is to make available some of the most exciting synthesis technologies of the past 25 years. And make it available in a format that is not outrageously expensive yet allows the user, in many cases, to edit them and create their own sounds. If you weren't around the first time analog synthesis or FM synthesis roamed the earth you may never truly appreciate them being available here. If you judge the AN board's ability to do pianos or electric piano sounds versus samples and you do this in earnest, then you missed the point. Analog synthesis never could do those sounds well but they had their own charm. The fact that FM could not do convincing acoustic piano sounds is well documented but there are some sounds that nothing but FM synthesis can do. And VL is an acquired taste but nothing on the planet does what VL does. Basically, the Plug-in Voice parameters are backed up, even after power down. What is not backed up are any custom waveform elements you create yourself in any of the "pure synthesis" boards: AN, DX, and VL. And on the 3 AWM2 boards (PF, DR and PC) you select from preset ELEMENTS (the same as you do when you create an internal S90 Voice – in the S90 you select from a list of 1347 preset waveforms). From there you can program them/customize them.

Custom element data for the AN, DX, VL, DR and PC boards must be saved separately in a special "BULK" type file. This can be either in its own EDITOR or you can create a special PluginAllBulk file for the slot you have the board in. This is why a consistent layout of your boards becomes a necessity. As you increase your libraries of sounds for these technologies you will want to be able to take advantage of them quickly without much reconfiguring. When you create your own custom setups for the S90 and your PLG150 Boards you can automate the entire load

procedure so that when you power up all your Voice, Performance, Mix, Plug-in Voice, Custom Plug-in Voice and system data is loaded automatically. This can be accomplished by naming files in a specific fashion. Then you can 'teach' the S90 what folder to look in when you power up. See the Owner's Manual or the Power User documents on the PLG150 series boards for details on AUTOLOAD. The "Voice Editor for S90" will allow you to manipulate and copy/paste Voices into custom loads.

The Plug-in USER Voice data remains in memory after power down but can be backed up in an 'ALL' (.w4a), 'ALL VOICE' (.w4v), or 'VOICE EDITOR' (.w4e) file type. The Boards that have the ability to create custom element waveforms (AN, DX, VL, DR and PC) will save to SmartMedia card/SCSI drive in a bulk file: (.w2b) and this file is slot specific.

PluginAllBulk1 – slot 1

PluginAllBulk2 – slot 2

PluginAllBulk3 – slot 3

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