

Meridian 861 Supplement

Introduction

Congratulations on being one of the first owners of the exciting new Meridian 861!

We are very proud of the 861, it has been designed to give the very highest sound quality in a wide range of systems and to provide playback for all the sound formats currently available.

The technology in 861 is the most advanced; it is also designed to be flexible in the future. The card-based construction and use of flash memory for the built-in software mean that we expect to be able to keep your system up to date, or to evolve as your requirements change.

861 Documentation

This 861 is so new that the full System Guide is not available. However, the Meridian 800 Series dealers are fully trained in Meridian surround systems.

This sheet supplements your 861 User Guide and provides some items you or your dealer need to be aware of.

Most of the information in this sheet will be in the 861 System Guide when it is available. Please return the enclosed form to register your 861 purchase. We will send you the System Guide with any updates as soon as it is ready.

861 Built-in software

The 861 is a very advanced audio computer. The software that controls 861 and the DSP programs that process and decode the audio are held in a re-programmable 'flash' memory.

At any time the software inside 861 can be updated by connecting the 861 to either a personal or laptop computer – more details are given later in this supplement.

It is Meridian's intention to make appropriate software updates available through its support network.

Software updates may be necessary to allow the addition of new cards, new DSP functions, to expand functionality of the whole installation or to correct minor bugs under warranty.

We recommend that you take the dealer's advice about whether or not updates are appropriate to your application.

861 Set-up software

The 861 is a sophisticated device that offers a very large number of options to the installer – and therefore a very strong likelihood of excellent all-round performance in a wide range of applications.

Because there are so many things that can be customised in an 861, we have chosen to use a computer to assist in setup.

The Meridian 861 setup program is an exciting departure for high-end audio. The advantages of this approach become obvious as the setup proceeds – and in particular in the way the setups can be stored either as User Types or as computer files for backup.

THX approval

It is customary for all products incorporating THX technology to be fully evaluated by Lucasfilm. This process allows all parties to ensure that the intricacies of the surround controller are as expected.

The 861 is a very complex unit, being one of the first controllers offering THX with DTS and the very first to offer THX with MPEG audio.

This has caused some delays in the final THX approval for 861 which is not yet complete.

Lucasfilm have kindly allowed us to proceed with manufacture of 861 while they complete their testing.

Meridian obviously believes that the version of 861 software loaded in your 861 meets the THX requirements. In the event that any changes are necessary, we will immediately issue a software update to you or your dealer. Please be sure that you return the enclosed form so we can inform you on this.

Types and User Types

All Meridian products use the *Type* method of resetting the product back to one of several pre-programmed factory configurations.

Typing the product clears all settings you may have made in Calibration or by using the 861 Store or Assign keys. *Typing* also re-inserts a suite of previously stored settings or factory default settings. These settings can cover a large variety of things – ranging from input and output assignments, to detailed menu settings for each format + source combination.

To learn how to use *Type*, please refer to the 861 User Guide.

If you do not want to lose all the settings in your 861, they can be first stored as a file in a computer using the 861 setup program described later.

Your dealer may have created one or more User Types for you. The advantage of this is that you or the dealer can rapidly switch between a number of pre-determined options during installation, and you can have the security of being able to restore the dealer's settings at any time. User Types are created and installed using the 861 setup program.

Labeling

The back panel of each 800 Series card typically has the inputs and output sockets numbered, for example as D1, D2 etc. Beside each socket there is a white label area in which you can write the assignment in a way that helps you remember which is which.

The 861 is supplied with a number of self-adhesive pre-printed labels so that the inputs and outputs can be neatly marked to avoid writing on the product itself.

Taking time to fix the labels will help a great deal in the future – especially if you have more than one card of the same kind.

The labels can also be safely removed and changed at a later date.

Meridian 861 Supplement

Standard input connections

A standard 861 is fitted with:

- One analogue input card IA00 with inputs labeled A1 through A6.
- One digital input card ID10 with inputs labeled D1 through D6, O1 and O2.

Later 861s may also be fitted with an optional card:

- One Video switching card VS00 with inputs labeled V1 to V4 and S1 to S4.

The factory Type settings give a standard assignment of these inputs which is described in the table below. These assignments may already be suitable to your needs.

Source	Audio In	Video In
CD	D1	Last Valid
Radio	A2	Last Valid
LP	A1	Last Valid
TV	A3	V2
Tape 1	A4	Last Valid
Tape 2	D4	Last Valid
CDR	D3	Last Valid
Cable	O2	S3
DVD	D2	S1
VCR1	A5	V1
VCR2	A6	S4
LDisc	O1	S2

If any other optional input cards are fitted, they are not accessed as part of the standard Types and the 861 will need to be configured to use them.

Standard output connections

Analogue systems

A standard analogue system uses two OA00 analogue output cards. These cards are probably pre-labeled #1 and #2. OA00 #1 (nearer the centre of 861) has the master oscillators engaged and is used for the front channels.

Digital Theatre

A standard Meridian Digital Theatre uses an OD10 digital output card. At this time there should not be more than one of these fitted. For additional subwoofers, or mixed installations one analogue output card OA00 will be used. The connections in these cases are given in the following tables.

Analogue speakers

Speaker	Output
Left Main	OA00 #1: 1
Right Main	OA00 #1: 2
Centre	OA00 #1: 3
Subwoofer	OA00 #1: 4
Left Side	OA00 #2: 1
Right Side	OA00 #2: 2
Left Rear	OA00 #2: 3
Right Rear	OA00 #2: 4

Digital speakers

Speaker	Output
Left Main	OD10 #1: 1/2
Right Main	OD10 #1: 1/2
Centre	OD10 #1: 3/4
Subwoofer	OA00 #1: 4
Left Side	OD10 #1: 5/6
Right Side	OD10 #1: 5/6
Left Rear	OD10 #1: 7/8
Right Rear	OD10 #1: 7/8

Connecting a Theatre System

For more details of connecting a Meridian Theatre system, please refer in the interim to standard training materials and/or the installation manuals for 519, 565 or the DSP speakers. Some of this material can be found at Meridian's website:

<http://www.meridian-audio.com>.

Configuring a Digital Theatre

Installers please note. The 861 has been designed to be the default Controller in a Meridian Digital Theatre system.

Therefore, when you do an *Autoconfigure* procedure (press Clear in Standby) the 861 will become system Controller and the Master Speaker will be set as Non-controller.

This may not be what you prefer for infra-red control. In such cases the system controller needs to be setup manually.

Meridian 861 Supplement

Using the 861 setup program

Overview

Setting up an 861 with the setup program is easy.

861 settings can be stored on disk and we have included files containing settings corresponding to the built-in Types (see 861 User Guide).

The best approach is to start with a standard settings file that most closely matches your system. If you have used the setup program before, you may have a settings file of your own to start from.

Typically you would follow these steps:

1. Run the setup program, MERIDIAN.EXE. (See 'Program installation' and 'Running the software'.)
2. Load the appropriate settings file. (See 'To load settings from a disk'.)
3. Now alter the current settings of the product to suit the planned installation. (See 'Using the Windows 95 program'.)
4. When you are happy with the settings, you can store them in the product. (See 'To Store Settings in the 861'.)
5. You can then calibrate the unit using its built-in Calibration mode. (See 861 User Guide.)
6. After calibration, you can then load the fully calibrated settings back to the program. (See 'To extract the current settings'.)
7. If you wish, make a User Type for the settings so that they can be restored using Type. (See 'To Create a new User Type'.)
8. Add the Owner information in the 'Owner' section.
9. Store the Type and Owner information in the product – (See 'To put User Types into flash memory'.)
10. Finally, save the settings file to disk and keep it carefully – it is a backup of all your settings. (See 'To save settings to a disk'.)

System requirements

To run the 861 setup program, you must have a computer running *Windows 95* or *Windows NT 4.0*. The computer must have a spare serial port, capable of running at 38400 baud. A suitable null-modem serial cable is supplied.

Note: 861 internal software can be updated using a program which only requires DOS and a serial port. (See 'The FUPLOAD program'.)

Program installation

The setup program may have arrived on a floppy disk containing an installation routine or a self-extracting .EXE file with instructions. If the program has been obtained over the Internet, then it will be in the form of a self-extracting .EXE file.

In the latter case, create a directory for the program (e.g. C:\Meridian) and extract the files there. The program will install itself automatically the first time it is run.

Upgrading

If you are given an updated version of the program, follow the instructions that come with it.

Uninstallation

The program may have come with an uninstall program. Otherwise it can simply be deleted if no longer required.

What the software package contains

The package will contain some of the following:

- MERIDIAN.EXE – a windows-based application that creates configurations, User Types and that transfers settings between the computer, the product, and files on disk. It can also install new built-in software in the 861.
- FUPLOAD.EXE – a DOS program, which can also install new built-in software in the 861.
- DEBUG.REG – for advanced users only
- *.DLL – various application extensions required by MERIDIAN.EXE
- 861_XXX.MFU – these files (if present) are Meridian Flash Upload images, and contain built-in software for the 861.
- *.MSF – these are Meridian Settings Files and will contain settings for the 861.

Overview of settings in the Meridian 861

There are two types of memory in the Meridian 861, Flash and EEPROM. Flash memory holds information which, on previous Meridian products could only be altered by changing the EPROM. In 861 it can contain:

- Built-in operating software
- Owner information
- User Types.

The contents of the flash memory cannot be extracted from the 861, and can only be written by a PC directly connected to the 861.

EEPROM memory contains the current settings of the product. Some of these settings can be altered during normal operation, e.g. by creating a new preset or assignment. It is the EEPROM contents that are replaced by a pre-defined set when a product is *Typed*.

The current settings can be read and written by a PC directly attached to the product via a serial lead. The setup software allows the following operations:

- Upload of new built-in software into the flash memory of the 861.
- Upload of new Owner information and User Types into the flash memory of the 861.
- Storing modified current settings into the EEPROM of the 861.
- Extracting the current settings from the EEPROM of the 861.

Note: User Types cannot be extracted from the 861, so remember to save User Type sets to disk as well as uploading them into the 861!

Meridian 861 Supplement

Running the software

To run the software double-click on the Meridian icon in the installation directory.

The first time you run the software on a computer:

1. Go to the 'View' menu and select 'Options...'
2. Chose the serial port you intend to use to communication with the 861, e.g. COM1.
3. Click 'OK'.

Once made, this setting will be remembered and only needs changing if you want to use a different serial port.

The setup program can also be started by double-clicking an .MSF (Meridian Settings File) file.

To extract the current settings

You can extract the current settings from an attached Meridian 861 so they can be edited or saved to disk.

1. Select 'Fetch from products' on the 'File' menu, or click the 'Fetch' icon.

To load settings from a disk

You can load settings, User Types and owner information from disk.

1. Select 'Open' on the 'File' menu, or click the 'Open' icon on the tool bar.

To save settings to a disk

To save the current settings, Owner information and User Types to disk:

1. Select 'Save' or 'Save As...' from the 'File' menu, as appropriate.

To create a new setup

To create a new setup from scratch:

- Select 'New' on the 'File' menu, or click the 'New' icon on the tool bar, *or*
- Open a Meridian settings file as a starting point and save it with a new name.

To store settings in the 861

To store the program settings back to the product:

- Select 'Store to products' on the 'File' menu, or
- Click the 'Store' icon on the tool bar.

Using the Windows 95 program

Move around the 861's settings by clicking on icons in the left-hand pane of the application. Clicking once on an icon selects it and displays the corresponding settings in the right-hand pane. Double-clicking on a Product, Type, Current Settings or 'Back' icon opens it, and the left-hand pane changes to display a set of subsidiary icons – this works much like a directory listing.

As you move around, the title bar reflects your position in the settings. Settings in the right-hand pane may be modified by clicking on them and typing a new value or choosing from a list.

To create a new User Type

To create a new user type:

1. Select the left-hand pane icon for either 'Current settings', or an existing Type (which can be used as a starting point).
2. Hit the 'Copy as new Type' button on the toolbar. This transfers the settings to the clipboard.

This creates a new Type that can be named in its right-hand pane.

Note: If a Type icon is selected when you paste, then it will be over-written. If a User Type is pasted over the 'Current settings' this is equivalent to Typing the product.

To put User Types into flash memory

If you have created User Types in the setup program, you can load the current User Types in the 861's flash memory. This overwrites any User Types currently in 861.

1. Click on the 'Store' icon or look in the 'File' menu under 'Store to products'.
2. Select 'User Types and Owner information'

Advanced setup features

To save User Types to disk

If you have created User Types in the setup program, you can save the current User Types to disk as an .MFU file.

1. Select the 'Owner' icon for the product. Options for handling User Types are presented in the 'Advanced Tab'.
2. In the 'User Types' box, select 'Save to Disk'

To update the 861 built-in software

To change the built-in operating software in the 861's flash memory:

1. Select the 'Owner' icon for the product. Options for flash uploading are presented in the 'Advanced' tab.
2. In the 'Product firmware' box, select the correct .MFU file from the drop-down list. The list will show all upload files starting with '861' in the installation directory. To select an upload that has a different name, or is in a different directory, use the 'Browse...' button. Once the desired firmware has been selected:
3. Click 'Upload to product...' in the 'Product firmware' section.

Note: It can take several minutes to update the complete flash memory. In some circumstances screen-savers interfere with serial communications. We recommend that you disable or extend the time-out of any screen-savers before trying to upload a file.

Meridian 861 Supplement

The FUPLOAD program

The DOS-based FUPLOAD.EXE program can also be used to load built-in software to the 861. This allows the product to be updated with a less sophisticated computer, and also gives support for circumstances in which Windows communication problems may interfere with an update from the setup program.

To use FUPLOAD, the syntax is:

```
FUPLOAD 861_xxx.MFU /Cn
```

where 861_xxx.MFU is the supplied file, and n is the COM port to which the 861 is connected. Other, more advanced, options are summarised by FUPLOAD /?

The 861 must be in Standby to communicate with the PC. While it is being configured, it will say 'Connected to PC' on its front-panel display.

Hints and tips for the setup program

- Do not run other applications that use the same serial port as the Meridian application at the same time. This may cause a loss of connectivity. Quitting both applications and restarting should fix the problem.
- The 861 must be in Standby to communicate with the PC. If it is taken out of Standby (whether directly, or using the Comms or MSR) the next fetch or store operation may fail with a 'No Current Session' error. The operation will normally succeed if re-tried. If you intend to deliberately bring the product out of standby while running the setup application, use the 'Disconnect products' option beforehand.
- A maximum of 10 User Types can be uploaded into a product.
- Each User Type uses 300k of RAM while being edited. So, if a large number of types are being edited, the computer must have sufficient memory.
- Editing of presets and card settings is not currently supported by the application.
- By default, sources have the same names as the MSR buttons that will select them. If a source name is changed, the MSR legend is shown in brackets after the name.
- Screen-savers. In some circumstances screen-savers interfere with serial communications. We recommend that you disable or extend the time-out of any screen-savers before trying to upload a file.
- If you copy settings over an existing Type, the copied settings will not show up immediately. To see the new settings, click on another Type and then return. The settings will then be correct.

Advanced 861 settings

Settings with video

The 861 provides a *LipSync* feature to allow you to delay the sound by up to one video frame.

Some installations require longer delays to compensate for the delay in video processors. Video processors like line-doublers may delay the picture by up to 5 video frames – interfering significantly with the sound/picture alignment. The 861 allows an overall Delay setting to compensate for this.

To access this advanced setting:

- Select 'List' in the 'View' menu. This allows a tree-listing of settings.
- In the left-hand pane, find the Meridian 861, Current Settings, Setup branch.
- In the right-hand pane double-click 'Delay'. Enter a value up to 7 frames (30ms per frame).

Trigger outputs

The CO00 computer card in the 861 has three trigger outputs that can be used to operate 'Function Select' or certain relays. They may be used to trigger amplifier, video or environmental changes.

The state of the three outputs are adjusted in the setup program. Look under 'Sources'; select a source (e.g. CD) and click the 'Advanced' tab.

The trigger outputs each provide +12V nominal when selected, 0V when de-selected. Each trigger can supply up to 50mA.

Special settings for DTS

The 861 automatically detects DTS if you play a DTS CD, LaserDisc or DVD. When the disc starts playing, the 861 will switch to one of its DTS presets.

If you subsequently play a different disc – such as a standard CD or a Dolby Digital LaserDisc – the 861 will reload another DSP preset like Trifield or Dolby Digital (AC-3).

Dolby Digital and MPEG are both 'flagged' as non-audio in the incoming data stream and so devices like 861 or digital/analogue converters (DACs) know not to play it as normal audio by mistake. (This same method is used to prevent you playing back CDROMs as audio in a CD player.) If, for any reason, compressed streams are played as audio, the result is a loud hiss.

Like Dolby Digital and MPEG, DTS is a compressed (non-PCM) signal. DTS streams on the other hand are not flagged in this way; consequently normal DACs and decoders have no direct method of preventing you hearing the compressed stream as a loud hiss.

The Meridian 861 detects the DTS signal and switches to a DTS preset as quickly as it can. However, even the 861 needs a short time to be sure that this really is DTS. So, when you play a DTS LaserDisc you may hear the compressed signal as a short burst of hiss before DTS is identified. As we have explained, this is an unavoidable limitation of the way DTS is delivered, not of the 861. (See 'DTS Delay'.)

Meridian 861 Supplement

DTS Delay

In the setup program, look under 'Sources', select a source (e.g. CD) and click the 'Advanced' tab. There is an additional check-box that allows a short delay to be added to the audio for that Source.

Clicking on the box selects it. When this setting is stored in the 861 it will add a 32ms delay to the audio for that source. This delay allows the 861 time to detect a DTS signal before it is played out, and therefore prevents the short hiss occurring as the disc starts playing.

Setting DTS Delay is the ideal and recommended solution to playing DTS from CD. This setting is *not necessarily* recommended for video sources (such as LaserDisc or DVD) because 32ms audio delay may affect the *Lipsync* with the picture. It can be used in conjunction with the delay setting described in the 'Advanced settings with Video' section.

When you *Type* the 861, the default settings apply DTS Delay only to CD, Radio and CDR.

Diagnostic displays

The 861 can provide detailed information about its current operation. You may be asked to use these displays for fault-finding.

To turn Diagnostic displays on or off:

- In Standby, press and hold the Copy button for a few seconds, *or*
- In the setup program, select Diagnostic displays in Setup, Current Settings, Advanced.

When you use the Display key either on 861 or the MSR (See 861 User Guide), three new displays can be seen, as follows.

De-jittering diagnostics

The display looks like:

FIFO 83 TXU080251 00

These numbers may be requested by Meridian Technical Support.

Input signal diagnostics

The display looks like:

DSP VEAC 5/1/00/1/22

Here, 'V' and 'E' are flags for Invalid and Emphasis. 'A' or 'D' indicate Audio or Data; 'C' or 'P' indicate Pro or Consumer mode. The remaining numbers report status and may be referred to by Meridian Technical Support.

Setup Diagnostics

This display gives a very useful confirmation that the key output parameters are correctly set in the 861. The display looks like:

Setup GBG.1/MMSASA/D

The first three letters list the speaker layouts that will be used for Music, Theatre Layout and 5.1

The next part '.1' or 'Blank' indicates an LFE subwoofer.

The next section (between / and /) show the speaker settings in the order Main fronts, Centre, Sides and Rears.

The first two letters report the front speakers Main and Centre as follows:

- M for Meridian DSP
- D for Digital
- A for Analogue

The last four letters report the surrounds as Sides then Rears as follows:

- LA or SA for large or small Analogue
- LM or SM for large or small DSP
- LD or SD for large or small Digital

So, in the above example, the settings are for Meridian DSP Left, Right and Centre used with small analogue sides and rears.

The final entry 'A' or 'D' refers to the mode of the master oscillators. If the front speakers are digital then you should see a 'D', otherwise 'A'.

Reporting

If you need to report a problem, please provide the following information:

- Software version and date (select 'About' from the 'Help' menu).
- The computer hardware and operating system version in use.
- The exact error message (if any) reported by the 861 or the setup program.
- Any messages displayed on the product.
- A .MSF file containing the settings you were working on at the time.
- A description of what you think you did to cause the problem.



Meridian 861 User Request

Please register your 861 with us. We can then send you a complete installation manual when it is released. You can register in the following ways:

- Complete the details below and either mail or fax this sheet to Meridian Audio in the UK or Meridian America in Atlanta.
- Register by email by sending the necessary information to list6@meridian-audio.com

Your name

Mailing address
.....
.....
.....
.....

861 Serial number

Extra cards

Dealer who supplied it
.....
.....
.....

Comments

Meridian Audio Limited, Stonehill, Stukeley Meadows, Huntingdon, Cambs, PE18 6ED, England
Tel: +44 1480 434334 **Fax:** +44 1480 432948 **Web:** <http://www.meridian-audio.com>

Meridian America Inc., 3800 Camp Creek Parkway, Building 2400, Suite 112, Atlanta GA 30331
Tel: +1 (404) 344-7111 **Fax:** +1 (404) 346-7111