

Meridian Configuration Program Guide

Copyright and acknowledgements

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Getting started

This chapter explains how to install the Meridian Configuration Program, and gives a general overview of its key features.

Overview

The Meridian Configuration Program is a Windows application that lets you design the configuration of your G Series or 800 Series products to suit both your own personal preferences and the particular configuration of other equipment in your system.

It uses an intuitive graphical interface that prompts you at every stage for the information it needs to complete the system. When you have designed the system to your requirements you can save the configuration to the appropriate Meridian products in the system via a serial link connected to the back of each product.

How it works

The Meridian Configuration Program reflects Meridian's system approach to designing audio products and presents a graphical representation of your whole system. It allows you to create a

single configuration file representing the settings of each product in your system and the way they are interconnected. This file is stored in the controller of the system for future reference. As well as being far more convenient than configuring each product independently, this approach also enables the Meridian Configuration Program to check that the settings you are proposing are appropriate for the particular combination of products in the system.

The Meridian Configuration Program is structured as a wizard; it leads you through a series of stages from the **Welcome** page through to the **Finish** page, which is reached when the configuration has been completed. A Breadcrumb Trail below the toolbar at the top of the **Meridian Configuration Program** window shows your current position in the sequence of pages and allows you to jump back to an earlier page to check a particular setting you made.

Benefits of using the Meridian Configuration Program

Configuring your system with the Meridian Configuration Program offers several important benefits. In particular:

- You can configure the entire system in a single operation.
- It is more convenient and more intuitive than using the front-panel menus.
- You have access to many advanced configuration options that are not available from the front-panel menu.
- You can conveniently edit the names of sources, DSP presets, and radio presets using the keyboard.
- You can edit the G Series soft keys.
- If your controller is a G68 or 861 you can take advantage of Meridian Room Correction.
- You can set up multiple systems far more conveniently than by manually configuring each product.
- You can keep a record of the configuration of your entire system in a single document on your PC.

If you have made manual adjustments to the configuration of a product from the front panel, you can fetch the product's configuration into the Meridian Configuration Program as the starting point for the configuration of your system, in order to retain the settings, such as calibration settings.

Meridian Control Window

The Meridian Configuration Program is supplied with the Meridian Control Window utility, a separate PC application that allows you to control any Meridian product via a serial cable (or USB cable on certain products) using a simple push button interface that emulates a Meridian MSR+ or MSR remote control. Alternatively it allows you to submit commands by name, and supply parameters for commands that take a value, such as the volume setting.

Installing the Meridian Configuration Program

Requirements

To use the Meridian Configuration Program you need:

- A computer running Windows 95, 98, 2000, NT 4, ME, or XP.
- 10Mbytes of free disk space.

The Meridian Configuration Program communicates with the products you are setting up via a serial cable. The computer you are using needs to have a nine-pin serial port available, or you can use a USB/serial adaptor.

Alternatively some G Series products include a USB port, in which case the Meridian Configuration Program can communicate with them via a USB cable connected to the computer's USB port.

The software requires a mouse or similar pointing device – it cannot be operated solely from the keyboard.

To install the Meridian Configuration Program

- Insert the Meridian Configuration Program Installation CD-ROM.

The Setup program should run automatically when the CD-ROM is inserted. If not, locate **setup.exe** on the CD-ROM and run it.

The Setup program **Welcome** page will be displayed.

- Follow the wizard.

On the **Preferences** page:

- Leave **Install for all users** selected, unless you want to restrict use of the program to yourself on a multi-user machine.

Quick tour

This section gives complete step-by-step instructions for creating a complete configuration for a typical simple system. Even if this does not correspond to your own system we recommend you follow the tutorial to give you a quick tour of the Meridian Configuration Program. At each stage the Quick tour shows information in grey tinted boxes about the more advanced features of the program, and the additional options for configuring 800 Series products.

Running the Configuration Program

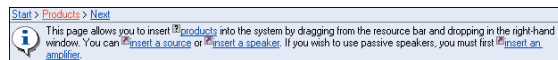
- Click **Start**, point at **All Programs, Meridian**, then click **Configuration Program**:



The **Welcome** page will be displayed. This provides links to useful information.

Using the Meridian Configuration Program

The simplest way to use the Meridian Configuration Program is to click the links in the Breadcrumb Trail and Information Bar at the top of the window; for example:



The Breadcrumb Trail shows a sequence of hyperlinks to pages you have already visited; this is indicated by the blue underline. Clicking one of the links takes you to the corresponding page to allow you to check your settings on that page, or make changes. The last entry on the Breadcrumb Trail is usually **Next**, which takes you to the next page.

The Information Bar provides help about the current page, and tells you what to do next. The Information Bar contains two types of hyperlink: definitions, prefixed by a question mark icon, which display a pop-up window with a definition of the item, and jumps, prefixed by an arrow icon, which perform an action or jump to another page.

Starting a configuration

To start creating a configuration from the **Welcome** page:

- Click the **Next** link in the Breadcrumb Trail:



The **Products** page will then be displayed. This allows you to define the products in your system and indicate how they are connected together.

Getting help

For more detailed information about the Meridian Configuration Program see the on-line help. To display the help:

- On the **Help** menu, click **Configuration Program Help**.

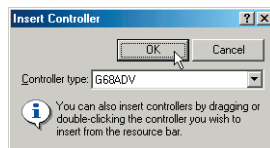
Products: Adding a controller

The controller is defined as the product that selects sources and controls the volume for the system; it is the digital surround controller, preamplifier, or combination product. In this example it is a G68 Digital Surround Controller.

- Click the **insert a controller** link in the Information Bar.

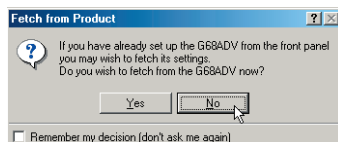
An **Insert** dialogue box is displayed to allow you to specify the type of controller.

- Select **G68ADV** from the drop-down list and click the **OK** button to add the product:

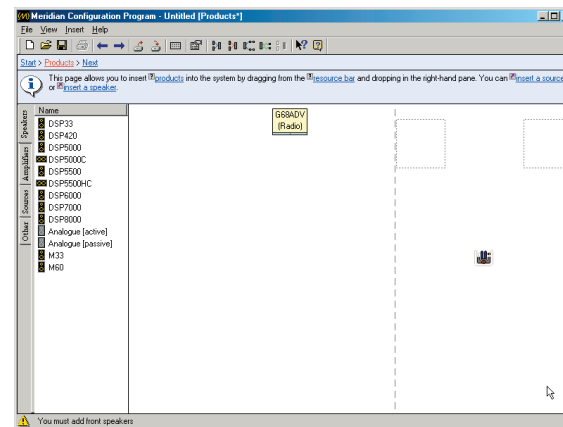


You will then be asked whether you want to fetch an existing configuration from the controller. If you are starting from scratch, as in this Quick tour, you do not need to do this. For more information see the *Advanced tips* on the next page.

- Click the **No** button to indicate that you do not want to fetch data from the digital surround controller:



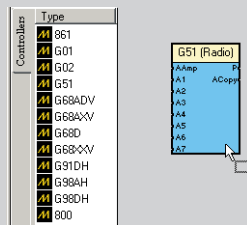
The **Products** page will then show a block representing the G68ADV Digital Surround Controller:



Advanced tips

Adding products by dragging them from the Resource Bar

The most flexible way of adding products is to drag an appropriate icon from the **Resource Bar** (to the left of the **Products** page) onto the **Products** page:



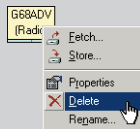
Fetching settings from a product

If you have changed any settings on a product from the front panel since making a previous configuration, you can retain the settings by using the Meridian Configuration Program to fetch the configuration from the product, rather than starting from a default configuration as described above. This is also useful if you cannot locate the file on the computer.

- Connect a serial cable between the product and your PC, as described in *To connect the serial cable*, page 23.
- When the **Fetch from Product** dialogue box is displayed click the **Yes** button.

Performing other actions

Right-clicking on most objects on the **Products** page displays a context menu of actions appropriate to that object:



For example, to delete a product:

- Right-click the product, then click **Delete** on the context menu.

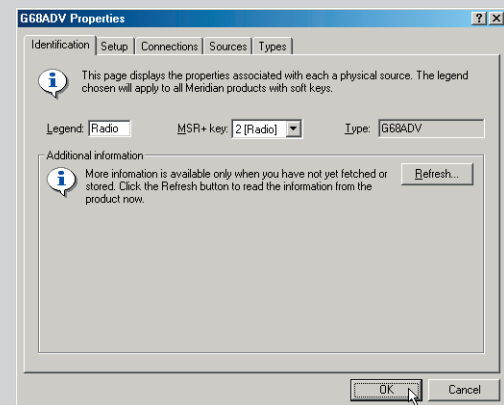
Note: If you delete the controller you will need to restart the configuration from scratch.

Displaying or changing product properties

Many products provide a range of properties that you can change for specific situations. To display the product properties:

- Right-click the product, then click **Properties** on the context menu, or double-click the product.

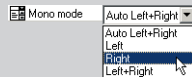
The **Properties** dialogue box shows a list of the properties associated with the product, and allows you to view or change their values:



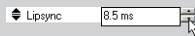
For detailed information about each of the properties refer to the *Configuration chapter* in the *Installation Guide* for the product, or the **FAQs** section in the on-line help. To display this click **Configuration Program Help** on the **Help** menu.

Changing the value of a property

- Click the value of the property.
- Choose an option from the drop-down list:



If it is a numeric property you will get a spin button rather than a drop-down list:



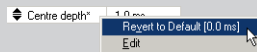
If it is an on/off property you can click the checkbox to change the value:



If you have changed the value of a property an asterisk (*) is shown after its name.

Reverting a property to its default value

- Right-click the property, then click **Revert to Default** on the context menu:

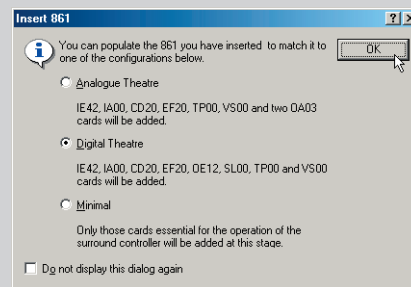


The menu option shows the default value.

Configuring 800 Series products

Adding an 800 Series controller

If you are adding an 800 Series controller a dialog box will allow you to specify one of the product's standard card configurations. Alternatively select **Minimal** to add a minimum set of cards at this stage, in which case you will be prompted to add further cards as you make connections to the product:



Adding cards

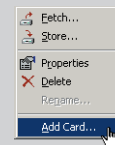
You will be automatically prompted to add cards as required when you add sources or speakers to the 800 Series product. Alternatively you can add cards explicitly if you prefer:

Either:

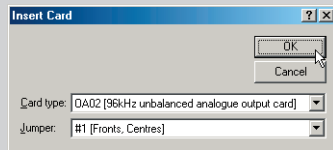
- Drag the appropriate card icon from the **861 Cards** or **800 Cards** tab in the Resource Bar (to the left of the **Products** page).

Or:

- Right-click the product icon, then click **Add Card...** on the context menu:



The following dialogue box allows you to specify the card type and, when appropriate, the position of the jumper identifying the card:



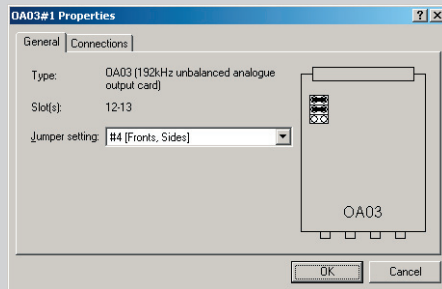
Removing a card

- Right-click one of the outputs on the card, then click **Remove Card** on the context menu.

Displaying the properties of a card

- Right-click one of the outputs on the card, then click the **Properties** item on the context menu.

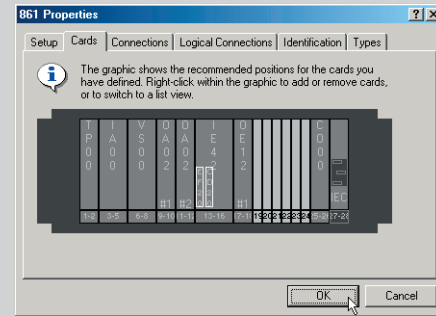
A **Properties** dialogue box shows information about the type of card, its slot positions, and the jumper setting:



Displaying information about the cards

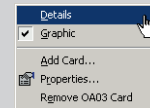
- In the **Properties** dialogue box click the **Cards** tab.

Initially this shows a graphic of the card positions:

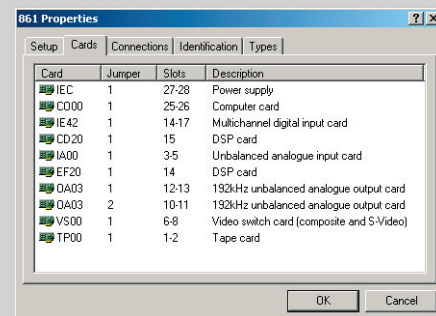


To show a list of the cards:

- Right-click, then click **Details** on the context menu:



This shows a list of the installed cards:

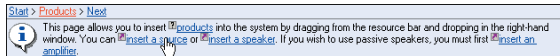


You can also add a card, remove a card, or display a card's properties in the **Graphic** or **Details** view by right-clicking, then clicking **Properties** on the context menu.

Products: Inserting a source

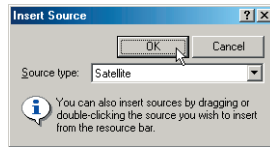
The next step is to add the sources in your system. For this Quick tour we will assume a satellite receiver is required.

- Click the **insert a source** link in the Information Bar.

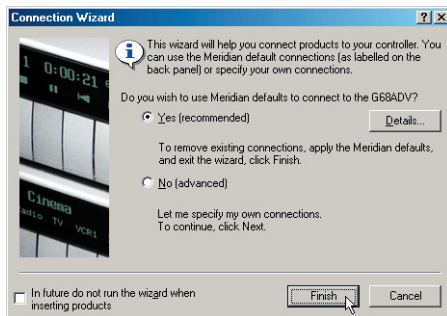


An **Insert Source** dialogue box is displayed to allow you to select the type of source.

- Choose **Satellite** from the drop-down list, and click the **OK** button to add the source:



The **Connection Wizard** is then displayed to assist you in connecting the source to your other equipment:

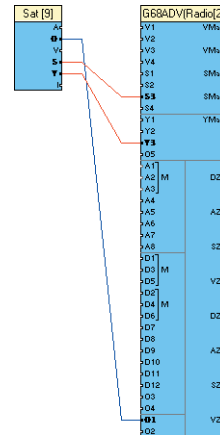


- Leave **Yes** selected to make the recommended connections between the source and the controller.

The Meridian Configuration Program will use a set of connections which match the back panel screening of the controller to make wiring up straightforward

- Click the **Finish** button to make the recommended connections.

The connections will be displayed on the **Products** page:



This shows the audio connection between the satellite receiver optical output and the optical input O1 on the digital surround controller, and the S-video and component video connections between the satellite receiver and the digital surround controller.

You can now proceed to add the other sources in your system in a similar way. In this example we are only inserting a single source.

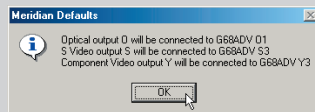
See the *Advanced tips* on the next page for information about modifying these connections; eg to use analogue rather than optical for audio.

Advanced tips

Showing a list of the recommended connections

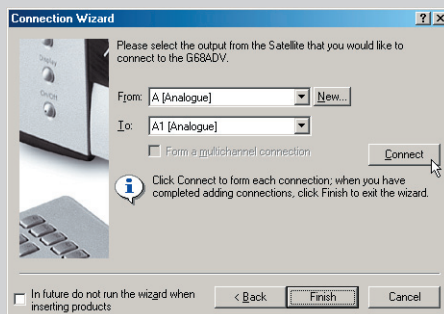
- Click the **Details...** button in the **Connection Wizard** dialogue box.

This shows the connections that will be made if you choose the **Yes (recommended)** option:



Specifying connections manually

- Choose the **No (advanced)** option in the **Connection Wizard** dialogue box.
- Click the **Next** button to continue.
- Specify each connection that you want to make from the source to the controller, using the **From:** and **To:** drop down lists, then click the **Connect** button to make the connection:

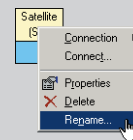


- Click the **Finish** button to close the **Connection Wizard** dialogue box.

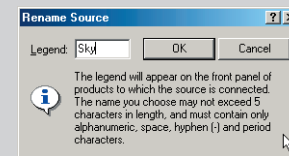
Renaming a source

You can give each source a name of up to five characters to identify it on the front-panel display:

- Right-click the source, then click **Rename...** on the context menu:



The following dialogue box allows you to enter a new name:

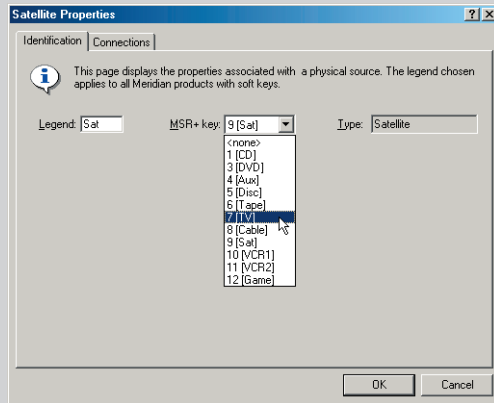


Changing the MSR+ key for a source

You can choose which MSR+ key selects each source:

- Right-click the source, then click **Properties** on the context menu.
- Click the **Identification** tab in the **Properties** dialogue box.

- Choose the MSR+ key from the **MSR+ key** drop-down list:



Showing and hiding connections

You can choose whether or not source connections are displayed by clicking the View or Hide Source Connections button in the toolbar:



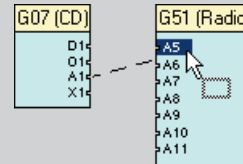
Displaying information about the style of each connection line

- On the **View** menu, click **Legend**.

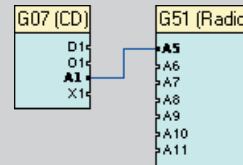
Connecting using drag and drop

You can also connect between any two compatible connectors using drag and drop:

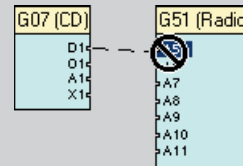
- Drag between the output on the source and the input on the controller that you want to connect:



When you release the mouse button the cable will be connected:

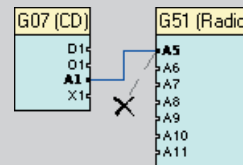


If the connectors are incompatible a stop cursor will be displayed:



Removing a connection

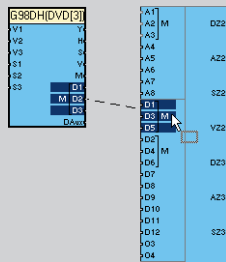
- Drag from one of the connectors and release the mouse button:



The cable connecting the two products will be removed.

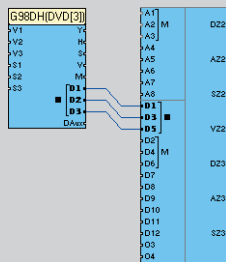
Making a multichannel connection

If you are connecting a product with multichannel outputs, such as a G98DH DVD Player, to a digital surround controller with multichannel inputs, the Meridian Configuration Program can create a multichannel configuration when you drag between two appropriate connectors:



A prompt allows you to choose whether to make a single or multichannel connection.

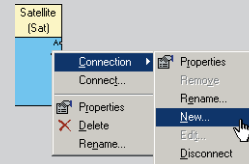
If you choose **Yes** the multichannel connection will automatically be made:



Adding or removing inputs or outputs

With non-Meridian sources you can add new inputs or outputs, or remove inputs or outputs, to reflect the connectors provided by your source. For example, if your satellite receiver includes a digital coax output you can add a connector for this:

- Right-click one of the source's existing connectors, point to **Connection** on the context menu, then click **New...** on the submenu:



The **Add Connector** dialogue box allows you to define the new connector.

- Specify the type of connector using the **Class** and **Type** drop-down list, enter a name, and choose **Output** or **Input** as appropriate:



- Click the **OK** button to add the connector.

Products: Adding speakers

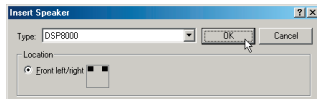
The next step is to add the speakers in your system.

- Click the **insert a speaker** link in the Information Bar.

The **Insert Speaker** dialogue box allows you to select which type of speaker you want to add, and the positions in which to add it.

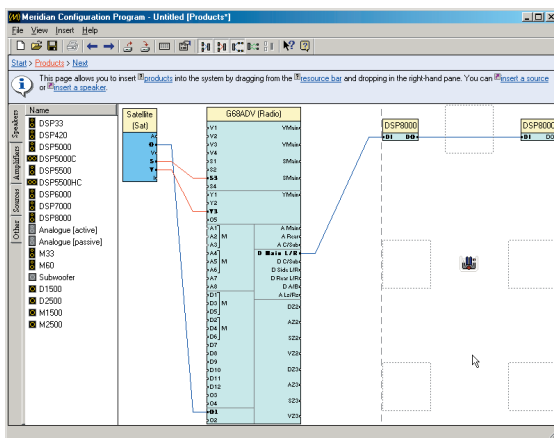
- Select **DSP8000** from the **Type** drop-down list.

The **Location** will automatically be set to **Front left/right**:

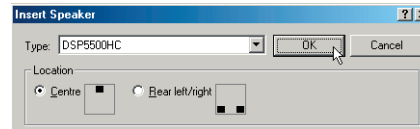


- Click the **OK** button to add the speakers.

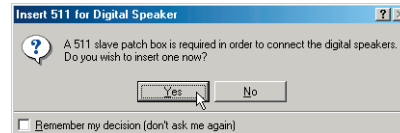
The speakers will be added to the appropriate points in the layout, and the connections will automatically be made between the speakers and the controller:



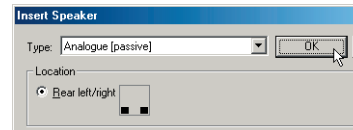
- Click the **insert a speaker** link again and select **DSP500HC** from the **Type** drop-down list to add a centre speaker:



The program will offer to add a 511 patch box to the layout to connect the Comms cables for the speakers:

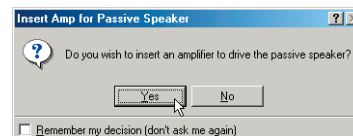


- Click the **Yes** button to confirm.
- Click the **insert a speaker** link again and click **Analogue (passive)** on the **Type** drop-down list to add small analogue rear speakers:



- Click the **OK** button to add the speakers.

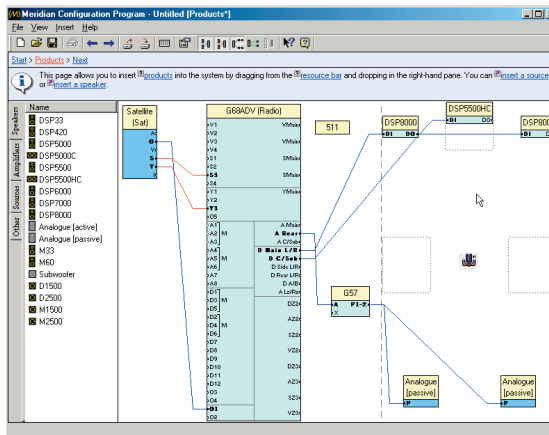
The Meridian Configuration Program will automatically prompt you to add an amplifier to the layout to drive the passive speakers:



- Click the **Yes** button.
- Click **G57** on the **Amplifier type** drop-down list, and click the **OK** button to add the amplifier:

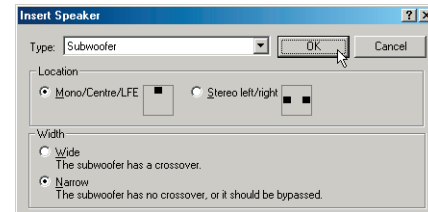


The G57 will automatically be connected up to the appropriate analogue output on the digital surround controller:



Finally insert a subwoofer into the layout:

- Click the **insert a speaker** link in the Information Bar and select **Subwoofer** from the **Type** drop-down list:



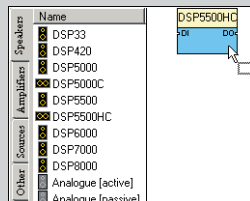
You can proceed to add any other speakers in your layout in a similar way.

- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

Adding a speaker by dragging it from the Resource Bar

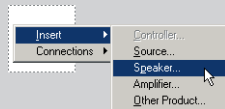
- Drag an icon from the **Speakers** tab of the Resource Bar (to the left of the **Products** page):



- Drop it onto the appropriate speaker position.

Adding a speaker at a specific position

- Right-click the position, point to **Insert** on the context menu, then click **Speaker...** on the submenu:



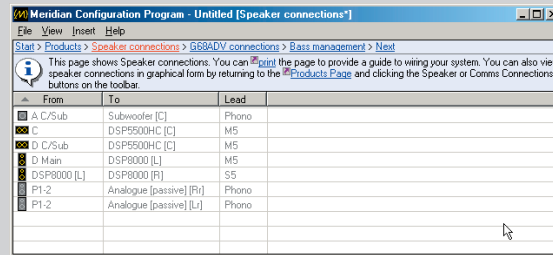
Alternatively, double-click or right-click the speaker position.

Reviewing and printing the source and speaker connections

Additional **Speaker connections** and **Controller connections** pages can be displayed to allow you to check the source and speaker connections, or print out a copy for help in wiring up the system.

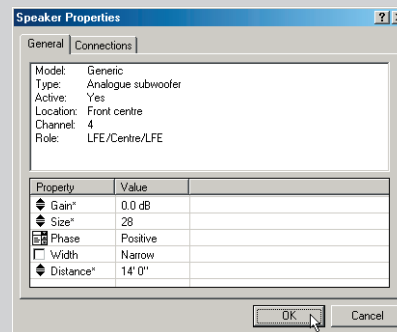
- On the **View** menu, click **Review Pages**.

The **Speaker connections** and **Controller connections** pages will appear in the Breadcrumb Trail after the **Soft keys** page:



Displaying or changing the speaker properties

To display the speaker properties right-click the speaker symbol, then click **Properties** on the context menu, or double-click the speaker symbol:



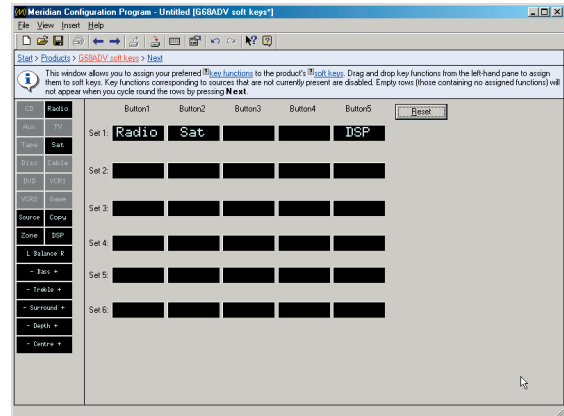
You can edit the properties in the same way as for source properties.

Soft keys

The **Soft keys** page allows you to customise the soft keys for each of the G Series products in the system, starting with the controller. In this example the only applicable product is the G68ADV.

An initial recommended layout is provided for each product; for example, for a G68 this provides soft keys for each of the sources in the system, plus a DSP key in the rightmost position.

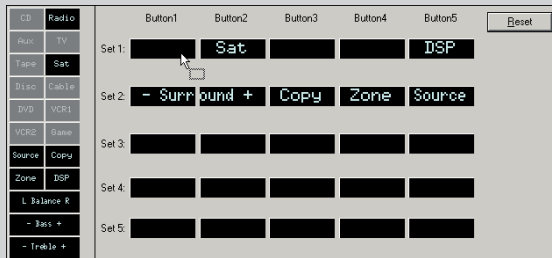
- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.



Advanced tips

Changing the soft key layout

- Drag a soft key, or pair of keys, from the left-hand pane onto the set of soft keys you want to edit:



- Hold down **Ctrl** to insert the key(s), moving existing keys right to make space.

You can undo or redo changes to the soft key layout by clicking the Undo or Redo buttons in the toolbar:



The first 12 soft keys correspond to the 12 MSR+ keys. Only the ones corresponding to the sources you have defined in your system will be available – the others will be greyed out. Their names will reflect the names you have given to the sources on the **Products** page.

Soft keys that work in pairs, such as balance, bass, treble, and bright, automatically occupy two adjacent soft key positions.

Renaming a source

- Right-click a soft key corresponding to a source, then click **Rename Source...** on the context menu:



All occurrences of the source in the soft key sets will be changed.

Clearing a soft key

- Right-click the soft key, then click **Remove** on the context menu:



Restoring the recommended layout

- Click the **Reset** button for a recommended assignment of soft keys.

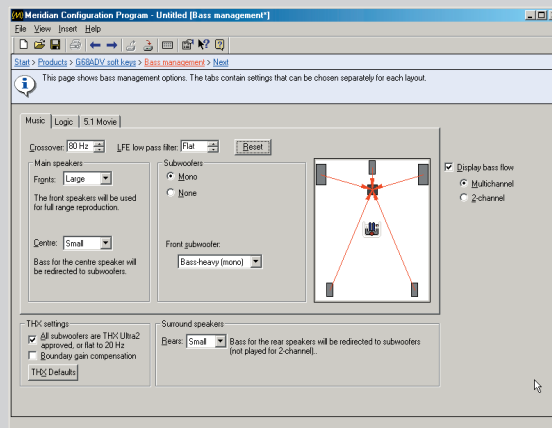
Bass management

The **Bass management** page specifies how bass is handled in the system for each of the three speaker layouts. The settings are automatically set to recommended values and can be ignored for a simple configuration.

- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

Meridian digital surround controllers allow you to define three different speaker layouts for use with different types of material: **Music**, **Logic**, and **5.1 Movie**. The **Bass management** page allows you to specify how the bass is handled in each speaker layout:



Specifying which speakers should handle the bass

The **Main speakers** and **Surround speakers** sections allow you to specify whether each speaker is **Large**, in which case it will handle the bass for that channel, or **Small**, in which case the bass for that channel will be redirected to another speaker.

You can choose whether the main front and centre speakers are specified as **Large** or **Small** for each of the **Music**, **Logic**, and **5.1 Movie** speaker layouts.

The diagram to the right of each tab represents the selected speaker layout; select **Display bass flow** to display red arrows on the diagram indicating how the bass for each channel is handled by the speakers in the layout for either **Multichannel** or **2-channel** sources as specified (see below).

Specifying which subwoofers are used in the layout

In the **Subwoofers** section you can specify how many of the subwoofers are used in the layout. Subwoofers used in the layout are indicated by a black square in the layout diagram, and subwoofers not in use are indicated by a white square.

If there are no subwoofers in the layout the front speakers must be specified as **Large**, and they will handle the bass for any other small speakers in the layout.

If there is one subwoofer in the layout, and you have specified the front speakers as **Small**, the subwoofer will be used for the bass and LFE. If the front speakers are **Large** and the centre speaker is **Small**, the **Front subwoofer** option allows you to choose from the following options:

Option	Use of subwoofer
LFE Only *	Handles just the LFE.
Bass-neutral (centre)	Handles all the bass.
Bass-heavy (mono)	Shares the bass with the front speakers.

* Not available for the **Logic** layout.

If the layout includes two or more subwoofers, the subwoofers will handle the bass and LFE for the system irrespective of the size of the front speakers.

Specifying the crossover settings

For each speaker layout the **Crossover** option allows you to set the crossover frequency for the subwoofers. This is ignored if the subwoofers are only handling the LFE.

The Meridian digital surround controllers provide very high-quality crossovers for the subwoofers, and for best results you should use these instead of the subwoofer's crossover. To do this set the subwoofer **Width** property to **Narrow**, and remove any crossover in the subwoofer, or set it to the highest setting (eg 200Hz). If you cannot do this, set the subwoofer **Width** property to **Wide** to switch off the digital surround controller's crossover and use Sine/Sub mode to match the subwoofer's crossover frequency.

The **LFE low pass filter** option sets the low-pass filter for the LFE channel, for the Music and 5.1 Movie speaker layouts.

- Click the **Reset** button to reset the crossover and low-pass filter to recommended values in all layouts.

Specifying the THX settings

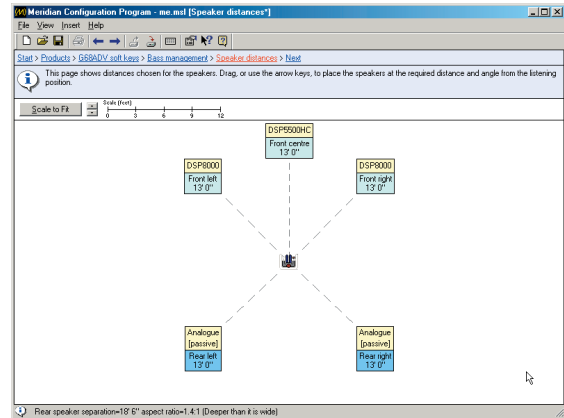
The **THX settings** tab allows you to specify that your subwoofers are **THX Ultra2 approved**, and select **Boundary gain compensation** to reduce bass levels if listeners are close to a wall. Click the **THX Defaults** button to set the crossover and low-pass filter to 80Hz in all layouts, as recommended by THX.

Speaker distances

The **Speaker distances** page gathers information about the relative positions of the full-range speakers in your system, and the distance of each speaker from the listening position. First choose the units you would like to work in.

- On the **View** menu, click **Metric** or **Imperial**.
- Measure the distance to each speaker in the specified units.
- Drag the speakers until they are in the correct positions, with the correct distance shown on each speaker icon.

This information is used to calculate the speaker delays, and generate the aspect ratio and rear speaker separation.



- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

- Click the ▲ or ▼ buttons to the left of the scale indicator to change the scale of the whole diagram.
- Click a speaker to select it, and then use the arrow keys to move the speaker in the corresponding direction.
- Use **Ctrl** + **↑** and **Ctrl** + **↓** to move a speaker away from or towards the listening position. Hold down **Shift** to move all the speakers at once.
- Use **Ctrl** + **←** and **Ctrl** + **→** to move a speaker in a circle around the listening position.
- Click the **Scale to Fit** button to increase the scale so the loudspeakers fit neatly in the window.

Speaker calibration

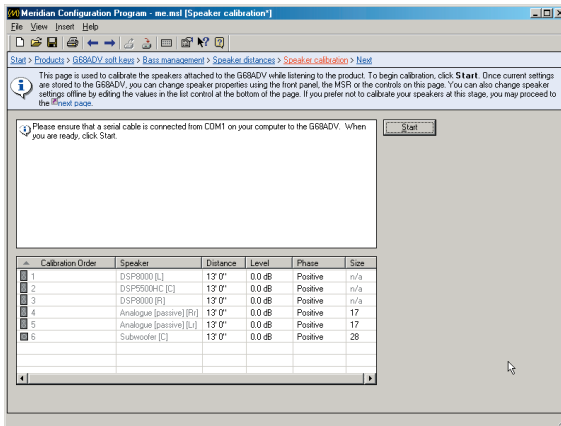
The **Speaker calibration** page allows you to calibrate the speakers attached to your controller while listening to the product. You can use the Meridian Configuration Program to step between speakers, and change the properties of the currently selected speaker, using the on-screen buttons.

To connect the serial cable

- Connect one end to the RS232 connector on the back panel of the controller in your system.
- Connect the other end to one of the serial ports on your computer.

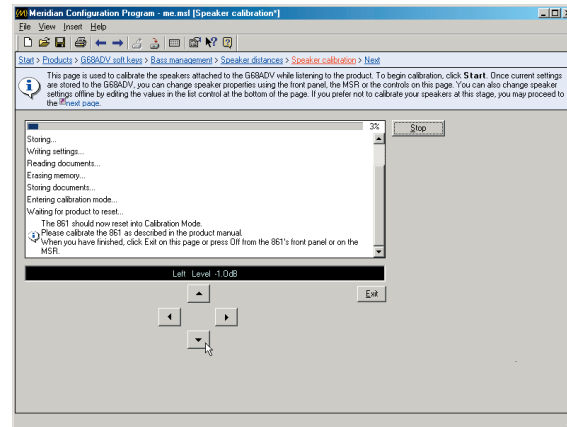
The default is COM1. If you have to use a different port see *Advanced tips* overleaf.

The **Speaker calibration** page shows a list of the speakers connected to your controller and the current distance, level, and phase settings of each speaker:



- Click the **Start** button.

The Meridian Configuration Program stores the settings you have created to the controller and then automatically starts the calibration sequence so you can tune your speakers by ear using a series of listening tests:



- Use the ◀, ▶, ▲, and ▼ buttons on the **Speaker calibration** page to control the product; refer to the appropriate guide for your product for details of the calibration procedure.

The product's display is shown above the arrow keys on the **Speaker calibration** page.

- When you have completed the calibration procedure click the **Exit** button on the **Speaker calibration** page, or the **Off** button on the product, to fetch the calibration settings from the controller.

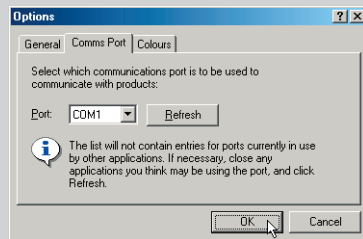
The calibration settings will be shown in the speaker list on the **Speaker calibration** page.

- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

Specifying the serial port

- Click the **Options...** button on the **Pre-calibration** store page to display the **Comms Port** tab on the **Options** dialogue box:

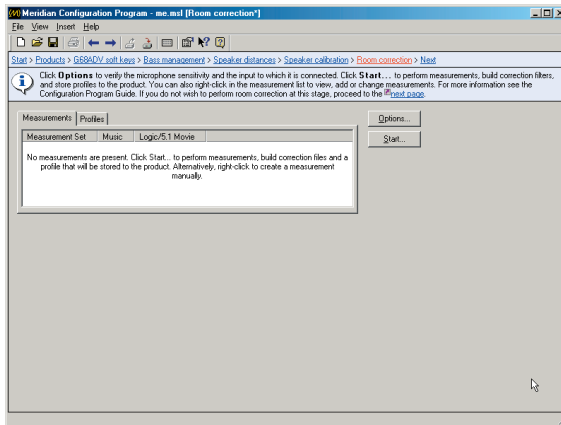


- Select the port you want to use from the drop-down list and click the **OK** button.

A warning triangle will be displayed against the port number if it is already in use by another program.

Room correction

The **Room correction** page runs the Meridian Room Correction procedure. This is optional and you can skip this stage by clicking the **Next** link in the Breadcrumb Trail:



For information about running the Room Correction procedure see the chapter *Room Correction*, page 31.

- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

DSP presets

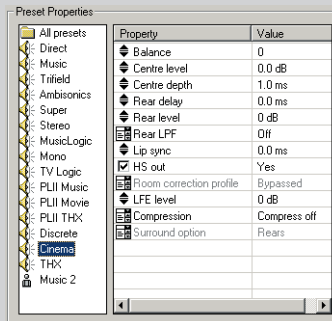
The **DSP presets** page shows a list of the DSP presets available to the digital surround controller, and allows you to edit the properties of each preset. You can also edit the preset mappings, to change the default DSP preset selected for each source and each audio format.

For a simple configuration you can skip this page.

- Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

The **Preset Properties** pane shows the name and value of each of the preset properties:



Some properties apply globally to all presets; to edit these select **All presets** in the **Preset Properties** list.

Displaying and changing the properties for a preset

- Select the preset in the left-hand list.

You can then edit the properties in exactly the same way as for product properties; see *Changing the value of a property*, page 9, or *Reverting a property to its default value*, page 9.

For full information about the parameters for each DSP preset see the Installation Guide for your product.

Creating user-defined presets

You can create additional user-defined presets with specific properties:

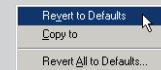
- Right-click the preset you want to use as the basis for the new preset, point to **Copy to** on the context menu, then click **New Preset** on the submenu:



If you have already created one or more user-defined presets, you also have the option of overwriting an existing user-defined preset.

Restoring presets to their default values

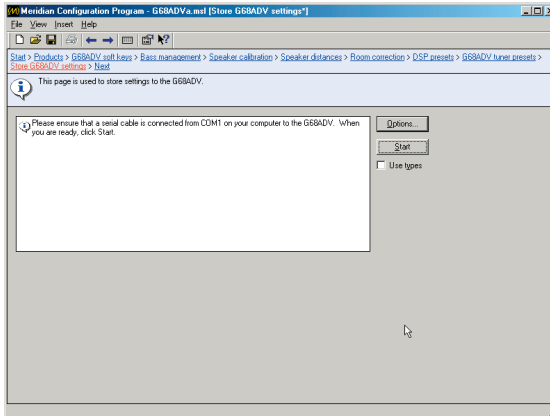
- Right-click the preset, then click **Revert to Defaults** on the context menu:



- Alternatively click **Revert All to Defaults...** to revert all the built-in and user-defined presets to their default properties.

Store settings

This page stores the settings to the controller:



- Connect the serial cable.

For more information see *To connect the serial cable*, page 23.

- Click the **Start** button to store the settings.

When the store has completed:

- Click the **Next** link in the Breadcrumb Trail.

Finish

The **Finish** page confirms that you have successfully completed the configuration of your system.

Save a copy of your configuration

Although a copy of the configuration document is saved in the controller for your system, it is recommended that you also save a copy of the final configuration document on your PC, with an appropriate name, so that you can refer to it again at a later date, if necessary.

- On the **File** menu, click **Save**, or click the Save button in the toolbar:



Room Correction

The G68 and 861 digital surround controllers incorporate room correction, which takes advantage of advanced digital signal processing techniques to compensate for room artefacts, including resonances and reflections, to give a significant improvement in the sound. This chapter explains how to use Meridian Room Correction to create profiles for use with the digital surround controller.

Introduction

The Meridian Room Correction procedure creates a set of one or more room correction profiles matched to your room. These are then downloaded to the digital surround controller and can be associated with particular presets, or selected from the front panel. Selecting a profile applies a set of digital filters individually to each speaker to achieve the required room correction.

If you use a single speaker layout you may choose to have one room correction profile, and use this with all presets. If you have separate speaker layouts for use with Music, Logic, and 5.1 Movie sources you will need to calculate a separate room correction profile for each speaker layout. These will then be selected automatically by the digital surround controller depending on the audio format. In addition, you can create separate room correction profiles to take account of changes to the room, such as the position of large items of furniture, or with curtains open or closed.

How room correction profiles are calculated

Calculating a room correction profile is a time-consuming and mathematically complicated process. Meridian Room Correction performs the necessary sequence of measurements and calculations automatically, using a PC connected to the digital surround controller, with the minimum of interaction. It works as follows:

First you need to set up a microphone close to the listening position, and connect this to an appropriate input on the digital surround controller. On the G68 Digital Surround Controller this will be A8 (L). On the 861 Reference Digital Surround Controller this can be any analogue input; input A1 on card IA00 is chosen by default.

Usually a standard sound pressure level meter will be used as a microphone; this can be the same one used for setting the speaker levels during the Calibration procedure. After an initial short test sequence, designed to check that the microphone is set up correctly,

a test signal is presented to each loudspeaker and measured at the microphone to determine how the room response affects the sound from each speaker. This stage of the procedure takes about one minute per speaker, and can be left to run unattended.

Finally, after a complete set of measurements has been made for each channel and speaker layout, the program calculates a set of filters for each channel, and stores these to the digital surround controller. A copy of the measurements, together with the calculated filters in each profile, is also stored on the PC so they can be accessed at a later date if required.

Examples

Most domestic rooms tend to be rectangular, or at the very least have one pair of parallel facing walls, and unfortunately these are the ideal conditions for low frequency resonances within the room. The wavelength of low frequency sounds is relatively large, so even bookcases and curtains act as an almost perfect mirror for low frequencies.

Frequencies close to the resonant frequency, determined by the distance between the two reflective surfaces, will sound louder and take longer to decay than other frequencies. In practice this means that when listening to music some notes will sound louder, giving a roughness or unevenness to the sound.

Other problems that can be corrected by room correction are imbalances between the speakers due to positioning constraints. For example, in an L-shaped room one loudspeaker may need to be close to the wall whereas its partner is in an open area, giving rise to an imbalanced sound field.

Unless your listening room has been specially designed for acoustic performance, you will almost certainly hear distinct benefits after incorporating room correction into your digital surround controller, and if the room has major resonances or imbalances the difference should be quite dramatic.

You can find more information about the theory behind Meridian Room Correction on the Meridian Web Site at:

http://www.meridian-audio.com/p_rc.htm

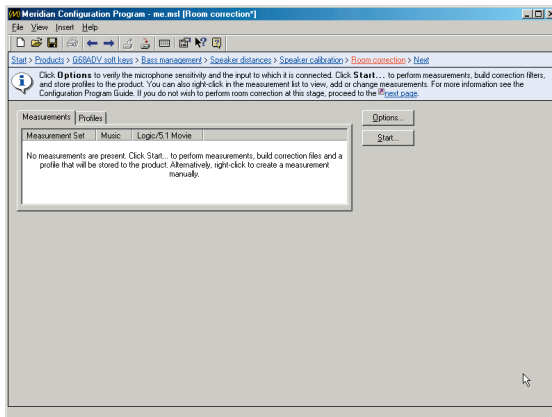
Auto Build

This section explains how to create a basic room correction using default settings.

The room should be as you would normally use it for listening. Close/open doors, close/open curtains, and position your screen and furniture as they would normally be for listening.

If you are creating room correction profiles as part of the initial configuration of your system, follow the procedure described in this chapter when you get to the **Room correction** page in the sequence of Meridian Configuration Program pages.

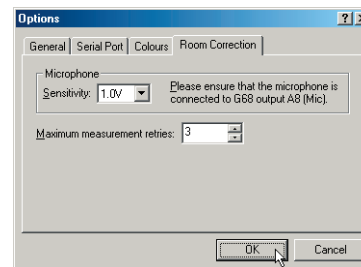
If you decided not to create room correction profiles when you first configured the system, start from the saved configuration file, or fetch the configuration from the digital surround controller, and then step forward to the **Room correction** page in the Breadcrumb Trail:



To set up the room correction options

The first step is to specify options for the room correction procedure.

- Click the **Options...** button to display the room correction options:



- Specify the sensitivity for the microphone.

When first running room correction it is recommended that you leave this at its initial setting.

If you are using an 861 Reference Digital Surround Controller you will also need to specify the card and input you are using for the microphone.

- Specify the maximum number of measurement retries; by default this is set to 3, but you can enter a lower value to reduce the time taken by retries.
- Click the **OK** button to confirm the options you have specified.

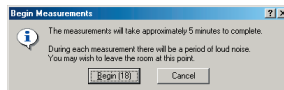
- If you are using a G68 Digital Surround Controller connect the SPL meter or microphone to the analogue input A8 (L).
- If you are using an 861 Reference Digital Surround Controller connect the SPL meter or microphone to the analogue input you specified in the **Options** dialogue box.
- Position the SPL meter or microphone at the listening position and, if you are using an SPL meter, switch it on.

When using an SPL meter, the C weighting must be used. The 90dB range is recommended unless the loudspeakers measured less than 75dB SPL during the calibration, in which case the 80dB range is recommended.

To run the Auto Build procedure

- Click the **Start...** button.

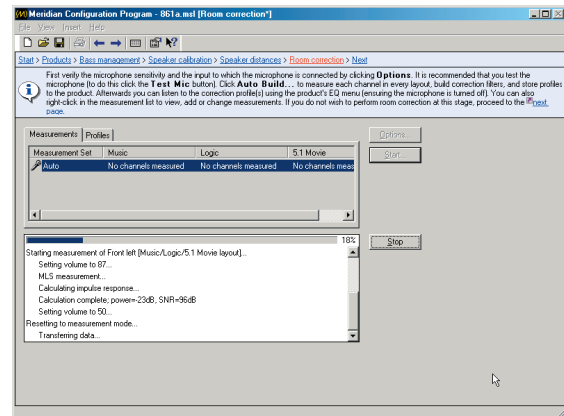
A countdown dialogue box will give you time to leave the room:



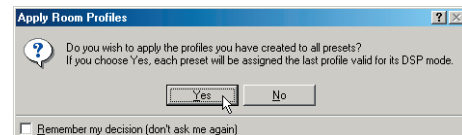
A test tone will then be presented to each loudspeaker in turn for each of the distinct layouts defined in the digital surround controller configuration file.

Depending on the number of channels and layouts in your configuration this may involve up to 24 tests and take up to 20 minutes to complete.

The **Room correction** page shows information about each test and a progress bar indicates the percentage completed:



When the measurements have been completed the following dialogue box allows you to apply the room correction profiles:



- Click the **Yes** button to assign an appropriate profile to each preset.

Each preset will be assigned the profile designed for the layout used with the preset. The wizard creates profiles called Mus, Log, and Mov for the Music, Logic, and 5.1 Movie speaker layouts respectively. If two or more layouts share the same settings, the profile name will include all the layouts it applies to; for example, MusLog or MusLogMov.

What next?

You have now completed the Auto Build procedure, which creates a recommended set of room correction profiles. In most situations this is all you need to do in order to take advantage of room correction with your digital surround controller.

The next sections describe some of the more advanced options available on the **Room correction** page, including the options for re-measuring channels, selecting different filter parameters, and manually editing the filters.

Viewing and repeating measurements

The **Measurements** tab shows a list of the measurement sets you have created. Each measurement set shows the channels measured for each of the speaker layouts set up in the digital surround controller configuration:

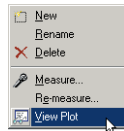
Measurement Set	Music	Logic	5.1 Movie
Measurement	L,R,C,LFE,Ls,Rs,Lr,Rr	L,R,C,Ls,Rs,Lr,Rr	L,R,LFE,Ls,Rs,Lr,Rr

You can also create additional measurement sets; for example to cater for different furniture layouts. For each measurement you can view the effect of applying different profiles.

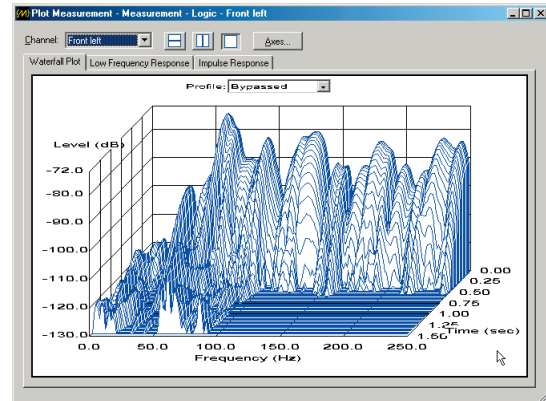
The **Measurements** tab gives you the option of viewing or comparing the measurements. You can also repeat the measurements for individual speakers; for example, if an external noise interfered with the test procedure.

To view the measurements

- Right-click the measurement you want to view, then click **View Plot** on the context menu, or double-click the measurement:



The **Plot Measurement** window allows you to see the measurement for the specified channel:



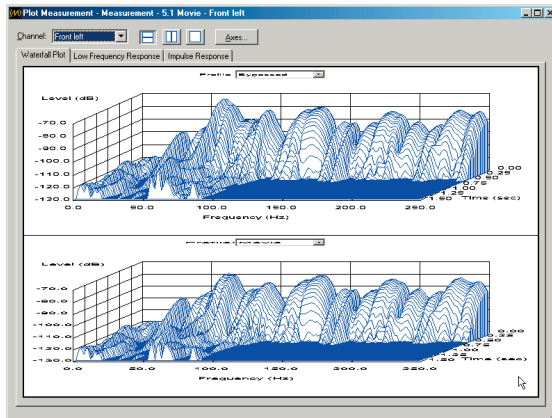
- Select the profile from the **Profile** drop-down list.

To show the uncorrected response select **Bypassed**.

You can compare the effect of two **Profile** settings on the same plot by clicking one of the split pane buttons:

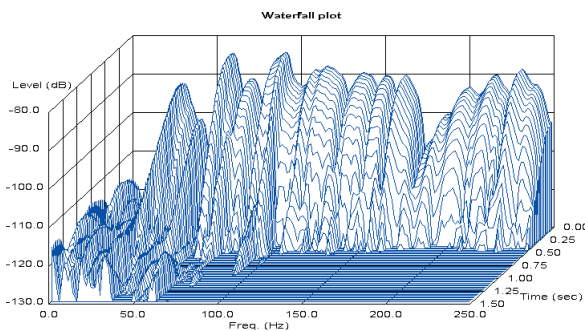


You can then set different **Profile** settings for each plot:



You can select one of the following three graph types by clicking the corresponding tab. All three views of the measurement are calculated from the same measured test signal:

Waterfall plot

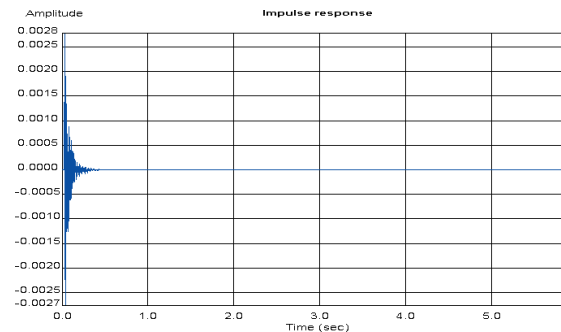


Shows the response of the room to a series of short sine wave pulses of frequencies between 0 and 250Hz. It shows how the response decays over time at each of those frequencies.

The ideal waterfall plot would have a smooth profile and decay evenly to a low level within 0.5 to 0.8 seconds. Peaks or dips in the waterfall plot indicate resonances or absorption at the corresponding frequency. Ridges extending forwards in time indicate reverberation at the corresponding frequency.

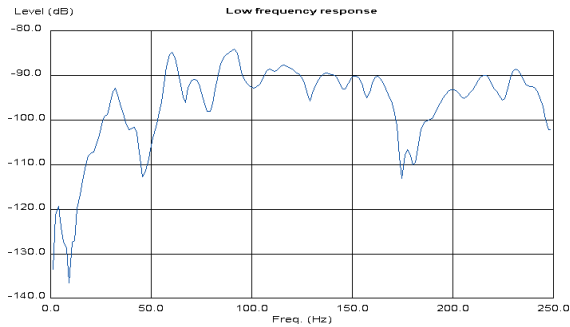
The room correction profile aims to identify the strongest resonances and to reduce the decay time of each strong resonance to the average decay time for the room.

Impulse response



Shows the response over time of the loudspeaker to a click. The curve shows a maximum just after time zero, and then decays rapidly depending on the amount of reverberation in the room. Any additional peaks in the response indicate resonances set up by the initial impulse.

Low frequency response

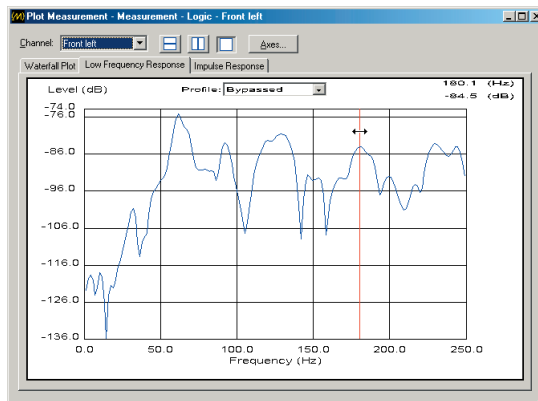


Shows the loudspeaker-room response to a low frequency sine wave, swept between 0 and 250Hz. The ideal low frequency response would be smooth. A peak in the response indicates a resonance at the corresponding frequency. A dip in the response indicates absorption or cancellation at the corresponding frequency.

To display the value of the curve at any point

- Drag to position the vertical red cursor.

The values of the curve at the current point are displayed in the top right-hand corner of the plot:



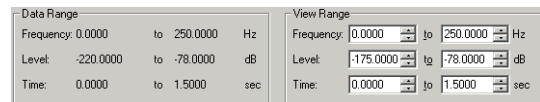
In the Waterfall Plot the values displayed correspond to Time = 0.

To change the axes

- Click the **Axes...** button to display the axis parameters.

The **Data Range** section on each tab shows the range of the data measured by the Room Correction procedure.

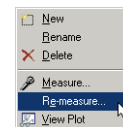
The **View Range** section on each tab allows you to set the range of the Frequency, Level, Time, and Amplitude axes as appropriate for each plot:



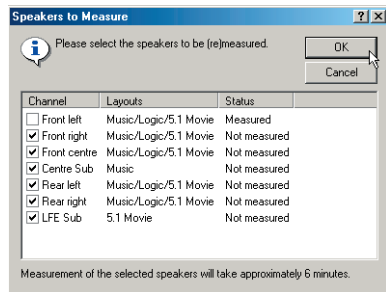
To repeat measurements

You can repeat measurements for one or more channels; for example, if an external sound interfered with an existing measurement.

- Right-click the measurement you want to repeat, then click **Re-measure...** on the context menu:

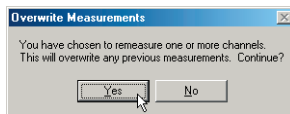


The following dialogue box allows you to select which channels you want to repeat:



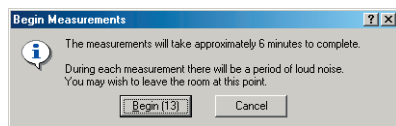
- Select the channels you want to repeat.
- Click the **OK** button to confirm your selection.

The following dialogue box warns you that the existing measurements will be overwritten:



- Click the **Yes** button to continue, or the **No** button to retain the existing measurements.

The following dialogue box then indicates how long the selected measurements will take, and gives you an opportunity to leave the room before the test sequence begins:



To create multiple measurements

You can create additional measurement sets to take account of different configurations of the room, such as with curtains open or closed.

- Right-click the **Measurements** tab, then click **New** on the context menu.

A new measurement set will be added to the list, and the **Speakers to Measure** dialogue box will be displayed to allow you to specify which speakers you want to measure.

- Click the **OK** button to proceed with the measurement.

To rename a measurement set

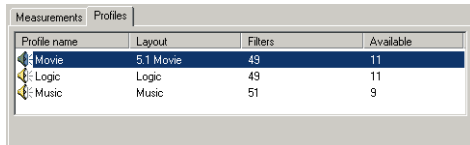
- Right-click the measurement set, then click **Rename** on the context menu, or press **F2**.
- Edit the name as required and press **Enter**.

To delete a measurement set

- Right-click the measurement set, then click **Delete** on the context menu, or select the measurement set and press **Del**.

Viewing profiles

The **Profiles** tab shows a list of the profiles that have been calculated, together with the number of filters used for each profile and the number of remaining filters available:



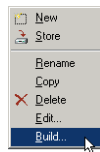
Profile name	Layout	Filters	Available
Movie	5.1 Movie	49	11
Logic	Logic	49	11
Music	Music	51	9

Each profile can use up to 60 filters; if a profile requires more filters than this, filters will be allocated in order of priority.

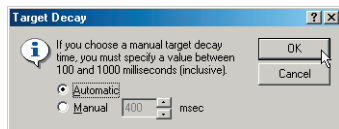
Each channel is limited to a maximum of 20 filters; a two-channel system therefore has a limit of 40 filters.

To build the filters for a profile

- Right-click the profile in the **Profiles** list, then click **Build...** on the context menu:



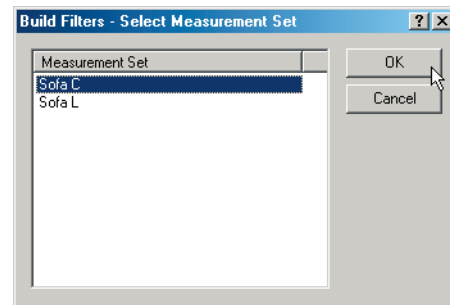
The following dialogue box then allows you to specify a target decay time:



- Leave **Automatic** selected, or click **Manual** and enter a delay time between 100 and 1000 milliseconds.

- Click the **OK** button to continue.

If you have more than one measurement set the following dialogue box is displayed to allow you to select which measurement set you want to use for the filters:



Note: The process of building filters is computationally intensive, and it is recommended that you do not try to run other programs at the same time.

As the filters are calculated the status is shown in the lower half of the **Room correction** page.

To store profiles temporarily to the digital surround controller

You can store profiles temporarily to the digital surround controller so you can listen to them while using Meridian Room Correction.

- Right-click the profile in the **Profiles** list, then click **Store** on the context menu.

The lower half of the **Room correction** page shows the progress as the profile is stored to the digital surround controller.

Editing filters

After building the filters for a profile you can edit the filters numerically or graphically to adjust their parameters, or change the response of each filter.

Note: This should only be attempted by users with an understanding of filter design. It is strongly recommended that you copy the profile first and then edit the copied profile. There is no undo function within **Edit filters**.

To display the filters for a profile

- Right-click the profile in the **Profiles** list, then click **Edit...** on the context menu, or double-click the profile in the **Profiles** list.

The **Edit Filters** window shows a numeric or graphical display of the filters in the profile.

- Choose a channel from the **Channel** drop-down list to display the filters for that channel, or choose **All Channels** to show all the filters for all channels on a single display.

To view the filters numerically

- Select **Numeric**.

The columns give the Centre Frequency (Hz), Gain (dB), Filter Bandwidth (Hz), Room Mode Bandwidth (Hz), Equalized Bandwidth (Hz), RT₆₀ (s), Target RT₆₀ (s), and Channel:

Centr...	Gain [...]	Filter ...	Room...	Equal...	RT60...	Targe...	Cha
61	-8.1	3.6	2.3	5.7	0.974	0.383	L
76	-5.8	4.5	3.3	6.3	0.676	0.348	L
93	-4.3	5.3	4.2	6.9	0.528	0.321	L
246	-3.6	5.7	4.7	7.1	0.473	0.311	L
120	-2.2	6.2	5.5	7.1	0.403	0.311	L

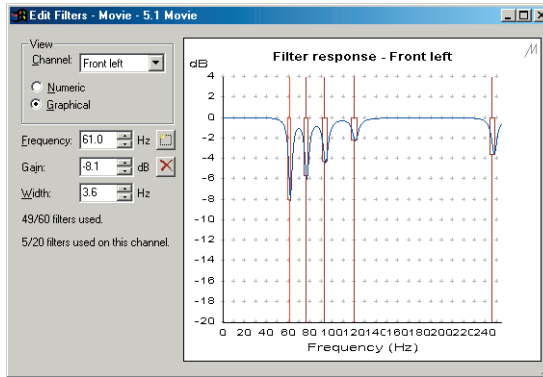
Frequency: 61.0 Hz
Gain: -8.1 dB
Width: 3.6 Hz

49/50 filters used.
5/20 filters used on this channel.

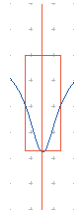
The fields on the left of the filters list allow you to adjust the **Frequency**, **Gain**, and **Width** of the currently selected filter.

To view the filters graphically

- Select **Graphical**:

**To edit a filter**

- Select the filter you want to edit by clicking on the filter:



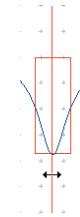
Alternatively if the filters are close together you can step right or left between filters using **Ctrl Tab** or **Ctrl Shift Tab**.

The currently selected filter is displayed with a red vertical bar at the filter centre frequency, and a rectangle indicating the bandwidth and gain of the filter.

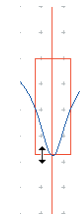
You can edit each parameter of the filter interactively as described in the following sections.

Centre frequency

- Drag the vertical bar to the left or right on the filter response curve, or press **←** or **→**:

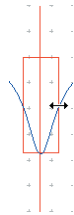
**Gain**

- Drag the base of the filter, or press **↑** or **↓**:



Bandwidth

- Drag one of the sides of the filter, or press **Ctrl** ← or **Ctrl** →:

**To add a filter**

- Click the Add button on the **Numeric** or **Graphical** tab:



- Edit the parameters of the filter as described above.

To delete a filter

- Select the filter you want to delete in the **Filters** list, or on the **Graphical** tab.
- Press **Del**, or click the Delete button:



Changing settings at a later date

This section describes how to change the room correction or configuration settings of the digital surround controller at a later date, subsequent to storing the original version.

Note: You can only edit or add to existing profiles if you have the MSL file originally used to design the profile. If you do not have the original MSL file you will need to make new measurements, create new profiles, and then store these to the digital surround controller.

To edit an existing profile, or add a new profile

- Run the Meridian Configuration Program and open the MSL file used to create the original profiles.

If you have changed settings on the digital surround controller since the original profiles were made, and you want to retain these changes:

- On the **File** menu, click **Save as** to save the MSL file under a new name.

To fetch the settings from the digital surround controller:

- On the **Products** page, right-click the controller, then click **Fetch...** on the context menu.
- Step forward to the **Room correction** page in the Breadcrumb Trail.
- Select the **Profiles** tab, and proceed as described in *Editing filters*, page 41.

To change other settings if you have the original MSL file

- Run the Meridian Configuration Program and open the original MSL file.

If you want to keep the original settings:

- On the **File** menu, click **Save as** to save a copy of the MSL file under a new name.
- Change the settings as required and store the new settings to the digital surround controller.

For more information about changing configuration settings using the Meridian Configuration Program refer to the Installation Guide for your product.

To change other settings if you have lost the original MSL file

If the original MSL file is not available you will be able to change all non-room correction settings, and which room correction profile you want to use with a given preset.

- Start a new document.
- On the **File** menu, click **Fetch...** to fetch the settings from the digital surround controller.

The newly created file will contain the profile labels and these can be used to choose the profile you want to use with a given preset. It will not contain measurements or profile data for Meridian Room Correction. If you use Meridian Room Correction to create new

measurements and profiles and store these to the digital surround controller, the old profiles will be overwritten.

- Change the settings as required and store the new settings to the digital surround controller.

For more information about changing configuration settings using the Meridian Configuration Program refer to the Installation Guide for your product.

To change other settings directly on the digital surround controller

For information about changing other configuration settings on the digital surround controller refer to the Installation Guide for your product.

After making changes on the digital surround controller you can add these changes to an existing MSL file as follows:

- Run the Meridian Configuration Program and open the original MSL file.
- On the **Products** page, right-click the controller, then click **Fetch...** on the context menu to fetch the new settings from the digital surround controller.

If you want to keep the original settings:

- On the **File** menu, click **Save as** to save a copy of the MSL file.

Troubleshooting

This section gives suggested solutions to typical problems that may occur when using Meridian Room Correction. If problems still persist after working through the following steps please send an email to support@meridian.co.uk with a zip file containing your MSL file. Please also supply details of the loudspeakers and amplifiers you are using.

Failed microphone/SPL meter test

During the first measurement a microphone test is performed to ensure that the power and SNR (signal to noise ratio) are acceptable. The larger the SNR the better the measurement.

The following sections describe some of the most likely problems which will cause the power and SNR values to go outside these ranges.

Power result "Bad"

This indicates that there is very little or no signal on the connector you have chosen as your microphone input.

- Check that there was sound from the front left speaker during the test.

If in doubt, repeat the measurement. If there is still no sound check the connections from the digital surround controller to the left loudspeaker. Switch the digital surround controller off and then on again, select **Calibrate** as described in the installation guide for your digital surround controller, and check that the left speaker plays the calibration signal.

- Ensure that the lead from the SPL meter is intact.

- Check that the SPL meter is switched on and set to the 90dB band, or the band which includes 90dB, and with C weighting.

If the loudspeakers measured less than 75dB SPL during the calibration phase it may be better to use the 80dB range.

- Check that the lead from the SPL meter is connected to the correct input, A8 (L) on the G68.
- Ensure that the **Sensitivity** setting is adequate for the SPL meter or microphone.

The sensitivity value for analogue inputs is given in rms volts (Vrms). For example, a sensitivity of 1Vrms allows a signal of 2.8Vpp. A sensitivity of 1V is recommended for use with most SPL meters though 0.7V may be preferable for those with lower level output.

Power OK, SNR result "Bad"

The most likely cause of this problem is that an analogue source is connected to the input chosen for the microphone.

- Check that the lead from the SPL meter is connected to the input you have chosen for the microphone test.

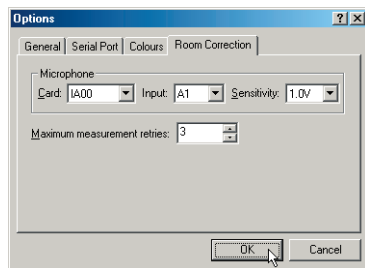
Another possibility is that the lead from the SPL meter is in bad condition and only making a poor connection.

Power OK, SNR result "Poor"

The reasons for this are described in detail in the following section where example measurements are also shown.

Repeated measurements due to poor SNR

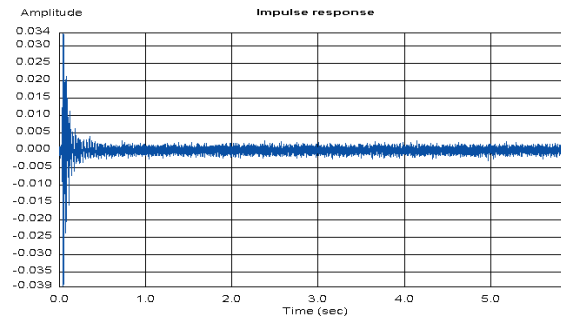
Measurements are retried until the SNR is acceptable or the maximum number of retries has been completed. The maximum number of times each measurement will be retried due to poor SNR can be set in the **Preferences** dialogue box, accessed from the **Options** menu:



The default number of retries is 3. If the measurements are consistently giving poor SNR figures you can reduce the number of retries. However, it is better to follow the steps described below to improve the measurement conditions. The better the measurement the more accurate the results when calculating the filters for a profile.

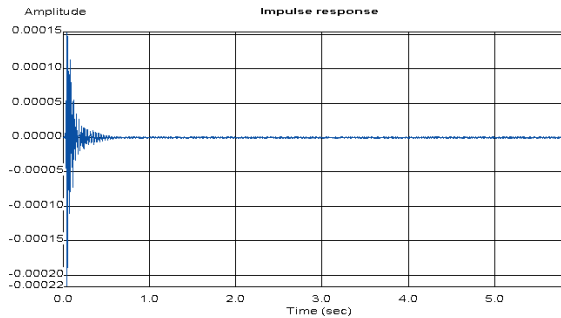
SPL meter is set on a low band

The following graph shows an impulse response obtained when a Radio Shack SPL meter was set on the 60dB band. The SNR value was "Poor":



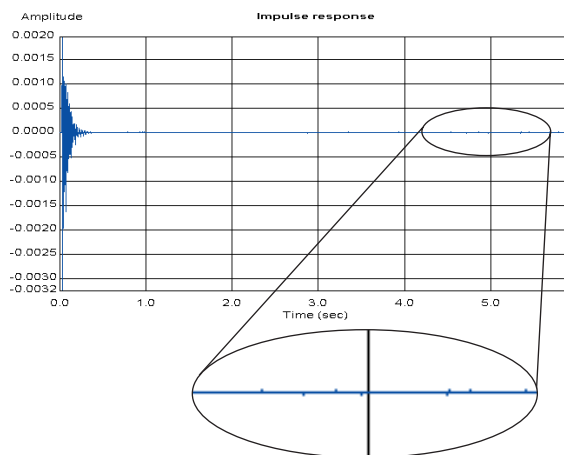
SPL meter is set on a high band

The following graph shows an impulse response obtained when a Radio Shack SPL meter was set on the 120dB band. The tail of the response is generally noisy. The SNR value was acceptable but the power was "Bad":



Loudspeaker is running in a non-linear range

The effects of a loudspeaker running in a non-linear range is most easily observed in the impulse response. The tail of the response has small spikes, as shown in the plot below, where it should be zero. The larger these spikes are relative to the largest value at the beginning of the impulse response the smaller the SNR value:

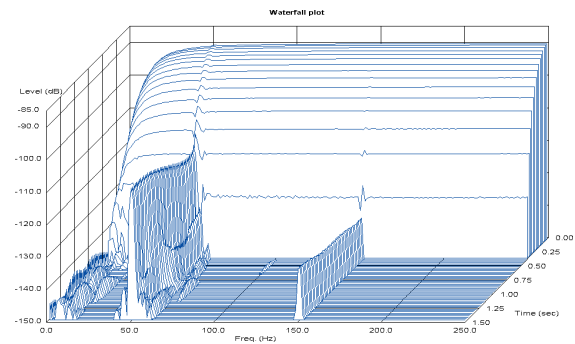


- Check that the bass protection size has been correctly set – see the Installation Guide for your product.
- Check that the bass drive unit in your loudspeaker is not rubbing.
- Check that your amplifier is not clipping.

If problems are still encountered, use the **Speaker calibration** page to reduce the gain of the channel. Use the reduced gain setting for the room correction measurements, then return to the correct level for a calibrated system after running room correction measurements.

Hum in the system

The effect of hum on the measurement is most easily observed in the waterfall plot. The continuing signal at 50Hz and 150Hz in the waterfall plot shown below indicates a mains hum loop:



You are likely to have heard this level of hum when playing analogue sources connected to the same analogue input card as the microphone/SPL meter.

In order to get a better measurement disconnect analogue sources from the analogue input card used for the room correction measurements. Reorganise your speaker wiring to remove the hum loop.

Hum may also be picked up by the lead from the microphone/SPL meter. It is best to use a shielded cable to reduce the chances of picking up hum.

Control Window

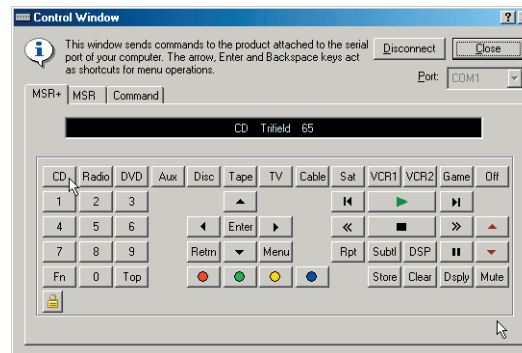
The Meridian Control Window emulates an MSR+ to allow you to control a Meridian product from a PC via a serial or USB cable.

Running the Meridian Control Window

- Click **Start**, point to **Programs**, **Meridian**, then click **Control Window**.



The Meridian **Control Window** will be displayed:



This provides the following tabs:

Tab	Description
MSR+	Emulates an MSR+ Controller.
MSR	Emulates an MSR Controller.
Command	Allows you to send predefined commands, and optionally specify arguments for the commands, and then see the response from the product in a terminal-style window.

Emulating an MSR+ or MSR

To send a command to the product

- Click the corresponding button on the Control Window.

The bar above the buttons shows the response from the product, corresponding to the front panel display.

To enter a function key

Either:

- Click the **Fn** button followed by the button you want to enter.

Or:

- Right-click the button or click the button while holding down **Ctrl**.

The legends of the buttons change to show the function options.

To lock the Fn button down

- Click the **Lock** button:



Subsequent button presses will then enter function keys.

Press the **Lock** button or **Fn** button again to release the **Lock** button.

To see the command corresponding to each button

Each button transmits a two-letter code to the product.

- Point to the button with the mouse pointer.

A tooltip shows the description of the key followed by the key's command:



You can also give commands by typing the key's command on the computer keyboard. **Note:** Commands are case sensitive.

For example, to select the CD source type **CD**.

In addition, the following keys on the keyboard provide shortcuts for the menu buttons:

Computer key	MSR button
↑, ↓, ←, →	▲, ▼, ◀, ▶
↵	Enter
⌫ (backspace)	Return

To disconnect the Control Window

- Click the **Disconnect** button.

To connect the Control Window

- Select the COM port you want to use from the **Port** drop-down list.
- Click the **Connect** button.

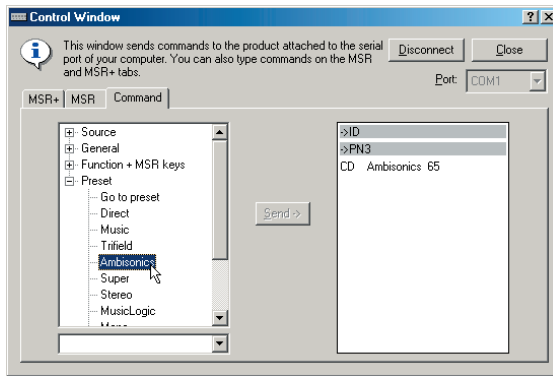
A warning triangle next to a port number indicates that it is in use by another application.

To close the Control Window

- Click the **Close** button or press **Esc**.

Using the Command tab

The **Command** tab lists all the available commands under four headings: **Source**, **General**, **Function + MSR keys**, and **Preset**:



To display the commands

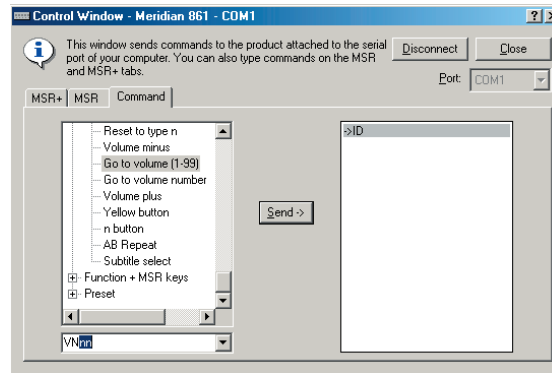
- Click the + button to the left of one of the headings to show the commands under that heading.
- Double-click the command you want to send.

To send a command with arguments

- Click the command in the **Command** list.

You will be prompted for the argument in the box below the **Command** list.

- Enter the argument from the keyboard:



- Click the **Send** button, or press **[↵]**, to enter the command.

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