

# Linn DS

Control4 Driver User Guide

Version 1.66

#### Introduction

This driver enables Linn DS series devices to be integrated with Control4 using the new Media Service Proxy. The **Linn DS Network** driver **must** be installed before this driver can be completely configured.

#### **IMPORTANT NOTICE**

If you are installing Linn Network, DS or Kustom drivers into a system that already contains versions of these drivers older than version 147 you must update all of these existing drivers to the latest version as the connections and internal communication protocols have changed. To do this:

- Download the latest online version of the drivers by going to the Search tab, unticking "Local", finding the driver and then right-clicking and selecting "Download Driver".
- Update each driver by right-clicking on an instance of it in your project hierarchy, selecting "Update Driver" and choosing the driver file you have downloaded.

If a simple update does not appear to have resulted in a working system, you may need to reinstall the drivers:

- Delete all instances of all Linn drivers in your project
- Re-install the drivers and their connections. The previous stages are necessary to ensure that you get the latest version of the driver when you do this install; just deleting and re-installing can end up with an older version that has been cached on the Director.

This driver has been designed to provide two-way control of Linn DS variants, via TCP/IP. The following features are supported:

- Automatic discovery
- Playback of music from music servers selectable in the Control4 UI.
- Support for amplified and non-amplified variants
- Analog line-in inputs for DS-I models
- HDMI inputs/outputs for DSM models
- Room selection
- Transport and volume control
- Play queue management
- Browse and selection of content
- Songcast accessed via the Control4 Zones page
- Browsing of music services such as Tidal

## **Installation Types**

This driver supports two alternative usages of the DS product. The DS can either be installed in a room and directly supply its audio/video to that room (standalone room mode, or "room" for short), or it can be installed behind an A/V matrix switch and its output is then supplied to one or more rooms via that switch (matrix switch mode, or "matrix" for short). Control4 can manage the grouping of room mode zones via Songcast but not matrix mode zones. Note that these two usages cannot be mixed – a DS behind a matrix switch cannot also be used to directly play to a room due to grouping and audio synchronization issues. Where set-up of the driver differs based on the usage, this will be highlighted in the instructions.

# Linn Configuration

Please make sure that the corresponding Linn device has been configured correctly, and is on the same network as the Control4 processor, prior to configuration of this Control4 driver.

The minimum configuration that is required to have a Linn DSM appear correctly in Control4 or Linn's music control app, is to set the DSM's Room and set which Sources are in use.

To configure a Linn DSM you will need Linn Konfig, which can be downloaded from https://www.linn.co.uk/software.

In Konfig, under the CONFIGURATION tab, click CHANGE and then select the Linn DSM that you want to configure.

## Setting the Room name

Select the DS tab, and then Device from the Linn DSM's configuration page. Enter the desired room name in the Room text box, by default it will be set to "Main Room". It is important to view/change the room names for each device as these room names get discovered in the Control4 drivers. A meaningful name should be used to avoid confusion when associating Linn rooms to Control4 device drivers later on.

IMPORTANT! The Linn room name is used to associate the Linn device with the Control4 driver. If this name is changed after the driver has been installed, it will no longer work. You will need to select the *Re-read Configuration* action to re-associate for a driver installed by SDDP or choose the new room name from the room name drop-down for a manually installed driver.

## Setting up a Source

Select the DS tab, and then Sources from the Linn DSM's configuration page. For each source that is in use on the Linn DSM, expand and enter the source's name and ensure the source's Visible is set to Yes. You must rename the source from the default name for it to register as being configured. It is useful to provide a meaningful name for the source as this is seen later during Control4 configuration. For each source that is not in use on the Linn DSM, expand and ensure the source's Visible field is set to No. Set-up of the login details for any sources that are streaming services is done through the configuration of the Gateway API section of the Kazoo Server using Konfig.

## **Advanced Configuration**

For more advanced configuration please refer to the Konfig manual.

## **Driver Installation**

Once you have established that the Linn DS Network driver has installed and discovered all your Linn devices (see documentation included with that driver), add one instance of a player driver "Linn DS Series" for each Linn DS player that you have in your system to the room in your project which contains the player.

It is possible to directly install DS players discovered through SDDP just by dragging them into the appropriate room in the configuration. This will also automatically associate the driver with that player, setting the **DS or Player** property appropriately.

If the DS is providing audio directly to a room (standalone room mode), we recommend naming the driver in a way that indicates the room it is in, e.g. "DS (Lounge)". If the DS is being routed through a switch (matrix switch mode), we recommend naming it according to its usage, e.g. "Martin's Music DS" (for a dedicated personal player), "Network Music DS" (for a single shared player), or "DS Player 1" (for a player to be selected from a bank of players) and also name the subsidiary Network Stream device to match as this is the device that the user will see in the UI.

# Driver Configuration

It is necessary to ensure that this device driver is controlling the correct Linn device (known as a "room" in Linn terminology). The **DS or Player** drop-down in the **Properties** window may be used to check and select the correct Linn room name to use as the player in each Control4 room. If you have installed or associated the driver with a DS device using SDDP, the **DS or Player** property will change its name to **DS or Player (SDDP)** and will be read-only as SDDP has already been used to make the correct choice of Linn room name.

roperties			Properties	Sur
Advanced Properties				
Properties Document	tation	Lua		
Driver Version	152	2		
Status	Сог	nnected	(room)	
DS or Player (SDDP)	Ma	in Room	1	
My Music Server	iTu	ines (M/	ATTHEWFAUP9AB7]	$\sim$
Input 1	CD	Player:	Auto-select	$\sim$
Input 2	Blu	ı-Ray, B	edroom: Auto-select	$\sim$
Input 3	TV	: No aut	o-select	$\sim$
Input 4	Sky	y Box 1:	Room on only	$\sim$
Input 5	Sk	y Box 2:	No auto-select	$\sim$
Input 6	DV	D: Roor	n on only	$\sim$
Auto Power Rooms	Po	wer con	trolled by driver	$\sim$
Locale	Eng	glish (er	i-GB)	$\sim$
Debug Mode	Pri	nt		$\sim$
Debug Subsystems				
Debug Level	5			* *

Figure 1: Room Selection

The driver has a "My Music" service associated with it. This allows the installer to configure a single UPnP or OpenHome server as the preferred source for music. The server is chosen through the **My Music Server** property of the driver. The alternative is the "Servers" service, which lists all the discoverable UPnP and OpenHome servers and then allows the user to browse through their content. The installer can choose to hide either of these sources in Navigator (see below) if they are not needed.

# **Control4 Connection Configuration**

As per standard Control4 practice, it is necessary to establish audio end-point connections for the device.

You do not need to manually configure any of the other connections between the device driver and the Linn DS Network driver (classes RF\_LINN\_SONGCAST and LINN\_NETWORK\_COMMS); these are all managed automatically.

Choose the **Connections** view, and select the **Control/AV** tab. Select the Linn device driver to reveal its connections. Note that the input connections are on the main device and the outputs are on the amp sub-device.



## Standalone Room Mode devices only

In the **Control & Audio Video Connections** window, select the **Audio End-Point** with the **Connection** type "AUDIO\_SELECTION" and drag it onto an available **Audio End-Point** in the appropriate room. If the Linn device is also providing the audio for video services in the room (either directly or through an HDMI ARC connection) then connect this to an available **Video's Audio End-Point** in the room. If the DS device supports video output and it is being used for this purpose, choose the **Video End-Point** with the **Connection** type "VIDEO\_SELECTION" and drag it onto an available **Video End-Point** input in the appropriate room.

Control & Audio Video Connections					
Master (amp)					
Name	Туре		Connection		
Audio/Video Outputs	1				
🌯 Room Audio	Audio		SPEAKER		
🌯 Room Audio	Audio		STEREO		
Control Inputs					
🗳 Linn Network	Control		LINN_NETWORK_CO		
Room Control					
Room Audio	RoomCo	ntrol	AUDIO_SELECTION		
Room Audio	RoomCo	ntrol	AUDIO_VOLUME		
Room Audio	RoomCo	ntrol	VIDEO_SELECTION		
<					
AUDIO_SELECTION Input Devices	5				
Device		Name			
😴 Linn Network		Audio En	d-Point 2		
🗊 Linn Netvork		Video's Audio End-Point 2			
🝞 Master 🏲		Audio End-Point 1			
🝞 Master		Video's Audio End-Point 1			
💓 Master		Audio End-Point 2			
💓 Master		Video's A	udio End-Point 2		
💓 Room 1	d-Point 1				
Figure 3: Driver Connections 2					

Depending on the model, DS players can be used to supply audio output directly through a built-in amplifier, by pairing them with a Linn pre-amp, or by pairing with a third-party alternative. If a Linn pre-amp is used then the inputs, outputs and audio control features of the pre-amp are seamlessly integrated into the control of the DS.

If using a built-in amplifier or a Linn pre-amp, drag the **Audio End-Point** with the **Connection** type "AUDIO\_VOLUME" onto an available **Audio Volume** input in the appropriate room to indicate that the Linn device is in control of the volume. If (as described above) the Linn device is also in control of audio for video services in the room, connect this end-point to an available **Video Volume** input in the room.

If integrating with a third-party pre-amp that has a corresponding Control4 driver, connect the STEREO Room Audio connection to the appropriate input of the pre-amp driver. You can then either use Konfig to disable volume control on the DS and connect the pre-amp driver to the room's AUDIO\_VOLUME connection to have the pre-amp control volume, or fix the pre-amp's volume level and control volume through the DS, in which case the DS should be connected to the AUDIO\_VOLUME end point.

For more details about pre-amp configuration, consult the Konfig manual.

## Matrix Switch Mode devices only

Connect the STEREO Audio Out connection and, if appropriate, the HDMI Out connection to the appropriate input(s) on the A/V switch driver(s) that represent the switch(es) to which the DS is connected.

## All devices – Input connections

If you are using a player with input connections, then you can also make connections to the relevant line-in connections on the driver. The properties of the driver will tell you which Control4 input each available Linn input is mapped onto, giving you the Control4 input number and the Linn name:

roperties			Properties	Sum
Advanced Properties				
Properties Document	ation	Lua		
Driver Version	152	2		
Status	Со	nnected	(room)	
DS or Player (SDDP)	Ma	in Room	1	
My Music Server	iTu	ines (MA	TTHEWFAUP9AB7	$\sim$
Input 1	CD	Player:	Auto-select	$\sim$
Input 2	Blu	ı-Ray, B	edroom: Auto-select	$\sim$
Input 3	TV	: No aut	o-select	$\sim$
Input 4	Sk	y Box 1:	Room on only	$\sim$
Input 5	Sk	y Box 2:	No auto-select	$\sim$
Input 6	DV	D: Roon	n on only	$\sim$
Auto Power Rooms	Po	wer con	trolled by driver	$\sim$
Locale	En	glish (en	i-GB)	$\sim$
Debug Mode	Pri	nt		$\sim$
Debug Subsystems				
Debug Level	5			-

Figure 4: Driver Connections 3

Connections	Control & Audio V	ideo Con	nections				
Control/AV Network	DS Series						
	Name Pinput 32	Type Video	Connection HDMI	Input/Output Input	Connected To		^
	Input 1           Input 1           Input 1           Input 2           Input 2           Input 2           Input 3           Input 3	Audio Audio Audio Audio Audio Audio Audio	STEREO DIGITAL_COAX DIGITAL_OPTICAL STEREO DIGITAL_COAX DIGITAL_COAX DIGITAL_COAX	Input Input Input Input Input Input	CD->Output Sony Blu-ray Player->AV Out tv->Output		
Sky Network → v Sky Receiver 2 Sony Bluray Player → CD DS Series → Network Stream ⊕ M DanC	hput 3     hput 4     hput 4     hput 4     hput 4     hput 4     hput 5     hput 5	Audio Audio Audio Audio Audio Audio Audio	DIGITAL_OPTICAL STEREO DIGITAL_COAX DIGITAL_OPTICAL STEREO DIGITAL_COAX DIGITAL_OPTICAL	Input Input Input Input Input Input Input	Sky Receiver>AV Out Sky Receiver 2>AV Out		
< DanC Y	DIGITAL_OPTICAL Output	Devices					
System Design System Connections Hedia	Device Apple TV 1 Apple TV 2 Receiver Receiver 2		Name Output Output Output Output		Location Room Theater Living	Connections	
Agents	Sky Receiver		Audio Out AV Out AV Out		Room 1 DS Room DS Room	DS Series->Input 4 DS Series->Input 5	
🐉 Programming	Sony Blu-ray Player		AV Out Output		DS Room DS Room		
Director Status: Idle					Conr	pected to 172 16 112 179	((\$\$1)

Figure 5: Driver Connections 4

For devices connected to Linn pre-amps, the pre-amp inputs will also appear in the list of inputs on the driver properties page and should be connected up in a similar way to the DS's own inputs. Control4 does not have an HDMI ARC connection class at the moment, so for an HMDI ARC input use one of the alternative audio input classes instead (not the HDMI video input) on the appropriate input number.

## All Drivers – Satellite configuration

If the player is a satellite of another player, connect the Songcast Audio In connection (at the bottom of the long list of audio inputs) to the Audio Out connection of the master player, as shown below.



Figure 6: Satellite connection

## **Control4 Navigator Configuration**

By default, Control4 Navigators will automatically display all Linn device drivers in the project in every room (as well as unnecessarily exposing end-points). To change this, choose the **System Design** view, select the **Room** (or rooms, if distributed via a matrix) for the device and display the **Navigator** tab.

perties				Properties List
erties				
udio Video Devices Navig	stor Miscellaneo	81		
Menu Settings				
Here Setange				
Hide Room in Locati	on Menu 🗌 H	ide Room's Thermostat		
Experience				
Menus	Device Visib	lity and Display Order		Modity
Comfort	Visibility	Device	Location	^
Listen	Visible	[Zones]	Lounge	
Decenty	Visible	[Now Playing]	Lounge	
Watch	Visible	[Browse CD's]	Lounge	
That an	Visible	Network Stream (main)	main	
Submenu Filters	Visible	DS Series 2	main	
Cameras	Visible	blueray	Lounge	
Channels	Visible	My Playlists	TEST-PC2	
Lighting Scenes Motors/Second	Visible	Radio	TEST-PC2	
Movies	Visible	My Music 2	TEST-PC2	
Music	Visible	Servers	TEST-PC2	
Pools	Visible	Tuneln 2	TEST-PC2	
Staboris	Visible	Onbuz	TEST-PC2	~

Figure 7: Device Visibility

Choose Listen from the Menu list and click on Modify to change the device display visibility.

Select All			Select All	
Device [Sessions] [Now Playing] DVD Apple TV Tidal Qobuz CalmRadio TuneIn My Music Radio My Playlists Spotify Roon	Location Master Master Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network	Move Up Move Down Hide >> << Show	Device Linn Network [Browse CD's] Servers Streamer 2 Streamer 3 Streamer 3 Streamer 3 Streamer 4 Streamer switch 3 Streamer 4 Streamer switch 4 Master Master Master (amp) Network Stream (Master) LOEWE Connect	Location Linn Network Master Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network Linn Network Master Master Master
Sky Box 2	Master		radio Sky Network Cable TV	Master Master Master

Figure 8: Modify Device Visibility

For rooms that have a DS in the room itself (Standalone Room Mode), you will see devices corresponding to:

- The Linn Network
- All DS devices and Kustom zones that are in Standalone Room Mode
- The streaming media players, switches and amps built into these devices
- All the individual streaming services available (e.g. Tidal, My Music)
- Any devices connected to the inputs of the DS and Kustom devices.

In the Visibility and Display Order window, choose the devices you do not want to display from the Visible Devices & Order and click Hide>> to move them to the Hidden Devices list. Click OK once all devices not relevant to the room are removed. You are advised to hide all of the above except the streaming services and the connected input devices that you wish to use in that room. Note that the My Music service browses directly to the My Music Server chosen in the driver properties for the DS in that room, while Servers lists all the available UPnP and OpenHome servers. If you don't have a particular preferred server, you can hide My Music, while if you have only one music server in the system it would make sense to select that as the My Music Server and hide the Servers service.

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For rooms that have one or more DS devices available through a matrix (Matrix Switch Mode), you will see devices corresponding to:

- All DS devices that connect to the room via the matrix
- The streaming media players built into these DS devices
- Any devices connected to the inputs of the DS devices

You are advised to hide the DS devices as selecting these serves no purpose. The streaming media players are items that the user will choose to browse and select content to play.

<u>NOTE</u>: Changes made in Composer will only be reflected on Navigators if you choose **File** > **Refresh Navigators**.

## Feedback from Linn to Control4

Note that this section only applies when using Linn devices in "room" mode; in "matrix" mode, there is no specific mapping from a Linn device to a Control4 room and the Linn system is unaware of the switching configuration, so the driver cannot provide feedback.

As well as passing on commands from Control4 to the Linn device, the driver attempts to feed back into Control4 any changes of input on the device that are caused by something outside of Control4 (e.g. front panel buttons or the Kazoo app). Because Control4 and Linn devices have differences in their concepts of rooms and grouping and because there may be devices configured in the Control4 system of which the Linn system is unaware, an exact correspondence between the two cannot be guaranteed, however in most typical cases the two can be kept in step.

When a Linn streaming device is selected to play a network stream (e.g. a service such as Tidal, UPnP music or Songcast received from another device), this will always be reflected in Control4, with the streaming player selected in the corresponding room.

When an external input of a Linn device is selected, the installer has a choice of what is done for feedback. This is selected using the dropdown list in the driver properties for each of the inputs. The choices are:

- Auto-select: If the input is selected in the Linn world, the corresponding Control4 device will be selected in whichever room(s) the Linn player is providing audio and the Control4 UI will show the correct controls for that device. This provides the best feedback from Linn to Control4 but it will only work correctly if the input device is directly connected to the Linn driver in Control4 and if there are no other ancillary devices that also need to be selected. If there are any indirections (e.g. switching) or other devices (e.g. a video device associated with the audio device) or sharing a single device as an input to multiple Linn devices then it will not work as required. If so, consider one of the other options.
- Room on only: If the input is selected in the Linn world, then if the Control4 room is off it will be switched on and the streamer selected as the current input device. This will provide feedback in Control4 that the room is now on and the streamer UI will provide metadata indicating which input has been selected. If the room is already on, the driver will not make any further changes, though if the streamer is the currently selected device then feedback will be shown in the streamer UI. This is an appropriate choice if the Control4 set-up for that input is beyond the simple configuration described above but you still want some feedback in Control4.

• No auto-select: With this option, any selection of the input in the Linn world is not reported in Control4 at all. It is up to the user to make any required changes manually in Control4 in order to get the two systems in synch. This is an appropriate choice for any input where there is a complex Control4 set-up (e.g. switching, combined audio and video devices etc.) and selection of the device is really only intended to be through Control4.

The other control over feedback provided is what happens when the Linn device is switched off in the Linn world. The two options, provided by the **Auto Power Rooms** property are:

- Power controlled by the driver: in this case, if the Linn streamer is the currently selected device in a room and the streamer is switched off, then the Control4 room is switched off as well. This is the usually recommended option.
- Off: in this case, the power state of the Linn streamer is not reflected in Control4. This option is appropriate if the Linn device is not the only audio or video device in the room and you don't want everything switched off every time the Linn device is powered off.

Note that when power is controlled by the driver, there may be up to a 30 second delay between the device powering off and the corresponding Control4 room(s) being switched off. This is an unavoidable side-effect of a feature of the protocol used to control the Linn devices.

# **Driver Operation**

A full description of the driver's user interface is available in this driver operation document.

# **Actions Summary**

The driver has the following actions:

Action	Purpose
Re-read Configuration	Re-synchronises the driver with the device if any configuration on the device is
	changed.

# **Properties Summary**

The driver has the following properties:

Property	Purpose					
Driver Version	The version of the driver					
Status	The connection status of the driver, which can be:					
	Created	Just created. If stuck in this status there is a fault with the driver.				
	Disconnected	Not connected to the Linn Network driver. Configuration is faulty; see Troubleshooting in the Linn Network documentation.				
	DS/Player not selected	Driver has not been associated with a device yet.				
	Offline	Driver cannot find the associated device on the network.				
	Connecting	Connecting to the device.				
	Connected	Connected to the device and operational.				
	For all these statuses, there will be a suffix of "(room)" to show that the player is					
	in standalone room mode, or "(matrix)" if it is in matrix switch mode.					
DS or Player	Name of the DS or OpenHome Player associated with this driver. This is the					
	"room name" attribute configured on the player. If the driver has been					
	associated through SDDP this will say <b>DS or Player (SDDP)</b> and will be read-only.					
	Otherwise it will be a drop-down list of discovered room names.					
My Music Server	The UPnP or OpenHome server chosen to be the destination for the My Music shortcut.					
Input 1 32	The name of the input on the DS that has been mapped to the given input number of the driver. So if Input 1 says "DVD" this means that the DVD					
	connected to the DS has been mapped to input 1 and the driver for the DVD					
	should be connected to the Audio In 1 and/or HDMI In 1 input of this driver.					
	Also gives a choice as to how feedback from Linn to Control4 is handled when					
	this input is selected.					
Auto Power Rooms	Select whether a room is automatically switched off when the player switches					
	off. If enabled, the room will only be switched off if the player is playing a					
	network stream (if it is playing an external input, that device may still be in use					
	via some other route).					
Locale	Used to select the locale for localising any messages and text strings returned by					
	the network driver.					

Debug Mode Debug Subsystems Debug Level Used to show debug output in the Director logs and/or Lua debug window. For use as directed by technical support. Usually leave blank. Level of debug output detail. 0 is errors only, 1 is errors and other important warning or status messages. Other levels give increasing detail but are usually only used under direction by support.

## Variables Summary

The driver has the following read-only variables in addition to the standard variables defined by Control4:

Variable	Purpose						
INPUT_NUMBER	Indicates which input is currently supplying audio to the room output:						
	-2 Songcast from a remote streamer.						
	-1 The local streamer.						
	0 Nothing.						
	132 External input 132; see Properties to determine which input number corresponds to which input device.						
	Note that it is not guaranteed that the input number is 0 when the room is off,						
	so programming should not rely on this nor on receiving a change in this value						
	when the room switches on.						
SOURCE_NAME	The name of the currently playing source. Names are as defined on the DS using Konfig.						
PAUSED	true if playback is paused, else false.						
PLAYING	true if playback active, else false.						
STOPPED	true if playback stopped, else false.						
PLAY_STATUS	One of the following values:						
	PLAYBACK_STATE_IDLE Playback has stopped.						
	PLAYBACK_STATE_PAUSED Playback is paused.						
	PLAYBACK_STATE_PLAYING Playback is active.						

## Limitations

## Non-standard play button behaviour

Pressing the Play button on a remote control while a track is playing will restart the playback of the track from the beginning.

## **Unavailable events**

The Input Changed, Volume Level Changed, Mute State Changed, and Any Audio Setting Changed events on the Audio Out output of the player proxy are not being raised. Programming should not rely on these events.

## Feedback of grouping status

While the driver attempts to keep the Linn and Control4 worlds in synch, if changes are made to the currently selected source, including grouping and ungrouping operations, by any means other than through Control4 (e.g. Linn Kazoo or buttons on the physical device) then these are not guaranteed to be reflected correctly in the Control4 UI. See **Feedback from Linn to Control4** above for how to set up

feedback to work as best possible.

A corollary of this is that Control4 may only think zones are powered on if a source for that zone was selected through the Control4 UI. So, even when the "all off" button on the top right of the Sessions screen is selected, "off" commands will only be sent to those zones that Control4 thinks are currently on.

When a DS player that is bound to a Control4 room is used as the "master" to start a group, if the room is subsequently switched off individually (rather than powering off the whole group), the room will power off and leave the group correctly, however the source player will go into standby too, stopping playback in all grouped rooms. If play is resumed by pressing play in another room, that will work however the original player's room will switch back on too but this will not be reflected in the Control4 UI. The discrepancy between the UI and reality can be corrected by re-adding the original room to the group.

A related temporary issue: when DS players are grouped and then the group is switched off using the Linn Kazoo app, at the moment only the master player in the group goes into standby. The other members of the group remain switched on but because their source player (the master) is off, they appear to be off too. The fact that they are not actually off cannot be seen in the Linn UI because all players in the group are folded into a single item that only shows the status of the master player.

Because the slave players are not actually off, they still report their status as "on" to the Control4 driver. This means that in the Control4 UI, the room associated with the master player switches off and leaves the group but the remaining rooms stay on and grouped. Linn are aware of this problem and are working to change behaviour in a release late 2020 so that the slave rooms correctly go into standby too when the master goes into standby.

## **Search features**

The browse screens for third-party music servers have a search interface, however search will only return results if the server makes corresponding search features available to the Linn gateway through an appropriate UPnP interface.

## Troubleshooting

## Communication lost with an individual player

Check that the player is still visible on the network and operating correctly. If it is, check whether the Linn Gateway has discovered the device (use the List Rooms Found action on the Linn Network driver). If it has not, press the Restart Discovery action button to prompt it to rediscover the device.

## **Communication lost with all players**

Check that the gateway device being used by the Linn Network driver is still visible on the network and operating correctly. If it is, but the driver is not showing its status as "Operational" then press the Restart Discovery action button to prompt it to rediscover the device.

## Adding new devices to the system

If you add new devices to the system you will need to run device discovery again to have the drivers recognise them correctly. Press the Restart Discovery button on the Actions page of the Linn Network driver. Allow a couple of minutes for the system to settle and then you should be able to install drivers for the new devices.

## Incorrect or missing properties

If the driver properties do not appear to match the device, use the **Re-read Configuration** action to force the driver to re-determine their values.

## **Other problems**

To get an idea of what the driver is doing, set the Debug Mode property to Print and the Debug Level property to 1 on either or both of the network and player drivers and then look at the output in the Lua window. This will show any errors, warnings and connectivity messages from the driver.

## **Technical Support**

For further technical support, please contact <a href="mailto:service@linn.co.uk">service@linn.co.uk</a>.