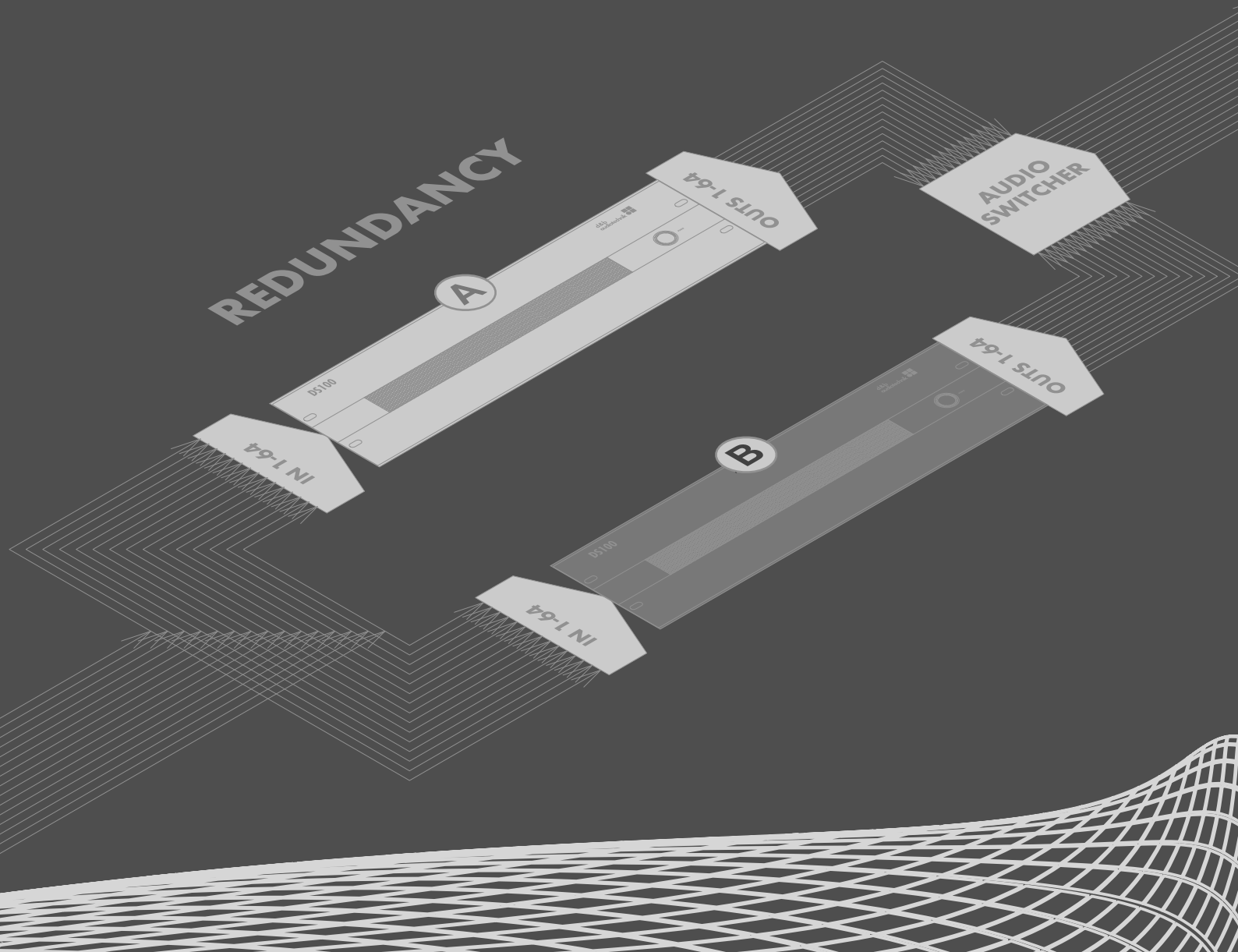# 503

TI 503
DS100
Device redundancy
1.1 en

General information

TI 503 DS100
Device redundancy

Version: 1.1 en, 12/2023, D5503.EN .01

1.1 Introduction

The d&b DS100 signal engine is a powerful multi-channel signal processing device which very often fulfills a central function in a sound system.

Therefore a system topology using redundant DS100 devices may be required. The R1 Remote control software and the DS100 Firmware support this functionality.

It covers En-Scene, En-Space and matrix operation of the DS100, and any combinations thereof. Even OSC control of sound objects can be applied to redundant DS100 devices.

1.2 Components

A redundant setup of DS100 requires at least one pair of DS100 signal engines both equipped with all software licenses (En-Scene and/or En-Space) required for the application.

In redundant operation, both devices simultaneously process identical signals. They are configured and always controlled identically to enable swapping the signals without changing the system response and sound design. Parallel operation, configuration and synchronization of the devices is performed using the respective functions in R1.
As usual, ArrayCalc can be used to prepare the configuration and create the Dante signal patch for the audio routing.

Different software tools can be used for OSC control of redundant DS100 devices.

1.3 DS100 audio routing

Redundant DS100 devices must be fed with identical input signals. In order to switch between device A and device B, the output signal routing to the amplifiers needs to be modified.
Depending on the desired failover performance and hardware effort, different means can be used for this purpose. In the following, a number of possible solutions are described.
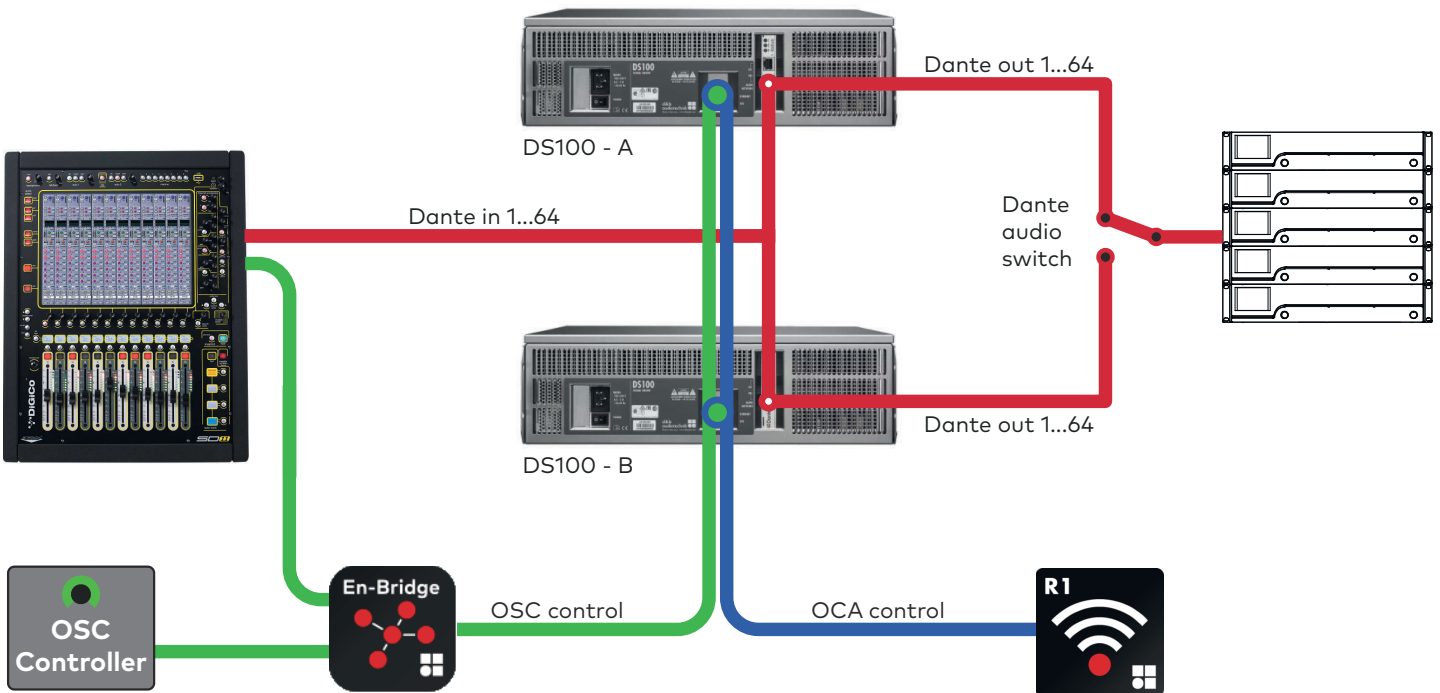
Dual Dante preset files

Using the Dante Preset file created by ArrayCalc, two preset files for device A active and device B active can be created. When both redundant devices and all DS10 audio network bridges are online, load the preset file into the Dante controller and assign the role of the DS100-A to the A device and the B device on the network, respectively.

Make sure all relevant input channels of both devices are patched correctly to the audio source and save each preset. Carefully consider all other connections and devices which should or should not be part of the preset file.

This procedure does not require additional hardware. However, swapping devices will interrupt the audio signal for a certain period of time until the Dante subscriptions in the network are reestablished.

Third-party audio switch

Using a hardware audio switch, for example a Dante enabled router or matrix, the outputs of both DS100 devices can be connected simultaneously. A setup like this allows swapping DS100 devices without the latency of reconfiguring the Dante network.

Amplifier input switching

When the A signal is fed to the amplifiers through DS10 and AES3 inputs, the B signal can be fed to the analog inputs (using a third-party Dante to analog interface and d&b 10D, 30D, 40D or D40 amplifiers only). Analog/digital inputs can then be swapped from R1. With 40D and D40 amplifiers, the Fallback function provides an automatic failover from digital to analog inputs using the DS-Data in the AES3 stream.

This setup not only avoids any latency but also does not add any additional single points of failure.
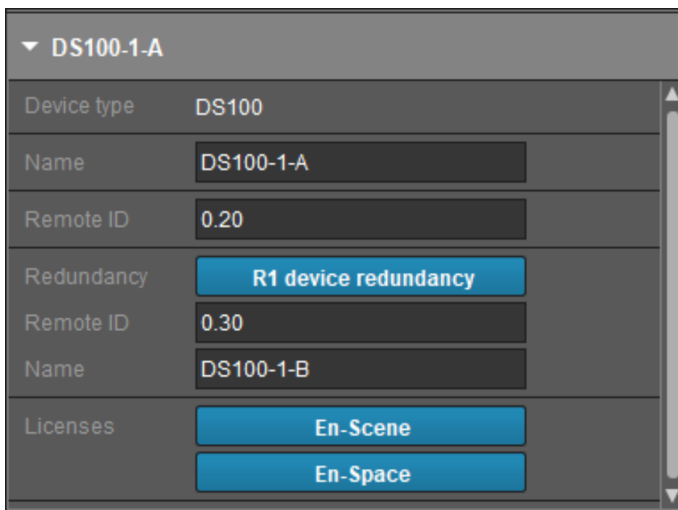
1.4 Configuration in ArrayCalc

DS100 device redundancy can be configured in ArrayCalc or added to an existing project in R1.

In either case, existing Snapshots and Scenes contained in the project are maintained and can be applied to the redundant device.

To generate redundant DS100 devices in ArrayCalc, only a single DS100 needs to be added.
The DS100 output patching to the DS10 and the amplifiers is performed in the usual way.

⟹ On the «Devices» ⟹ «Network Devices» tab, simply select «R1 device redundancy» for the respective DS100 and an A and a B device will be created.

1.5 Configuration in R1

If not already configured in ArrayCalc, redundant DS100 devices can also be assigned in R1.

1. Edit the «Devices» table and add a second DS100 unit.

2. Then select the «A» device and choose the respective «B» device from the drop-down list provided.
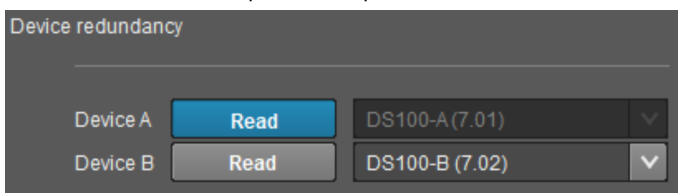

↳ In the «Devices» table, three devices will be listed, the combined redundant device and both physical devices. The device that is selected for readout is marked with a green tick.


1.6 Operation in R1

In R1, redundant DS100 devices are operated using the same functions and controls as for a single unit.

The «Device redundancy» system views shows redundant pairs of DS100 and allows you to select which one of the paired devices will be used to «Read» the parameters for controls and displays in the workspace and in the «Devices» view.
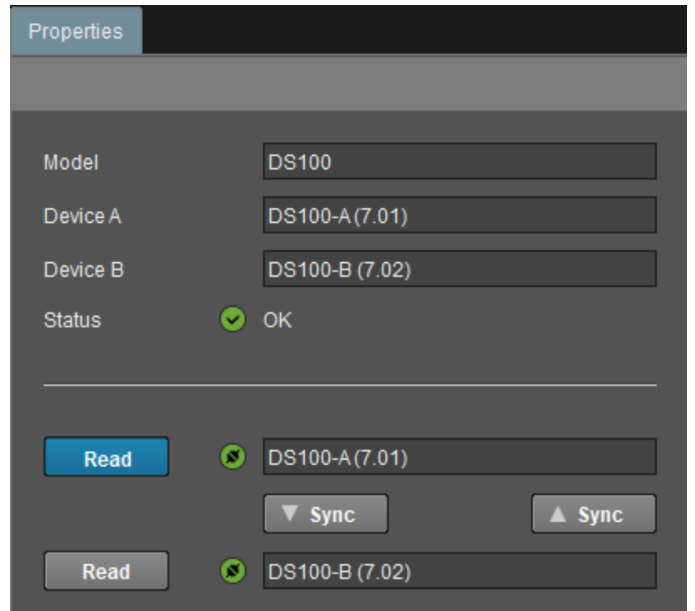
As all R1 controls and commands act on both devices, their status will normally be absolutely identical.
However, initially, after going online with R1 you should use the «Sync» function to mirror all parameters and scenes from one device to the other. Sync can be performed in either direction. The process is indicated by a progress bar.
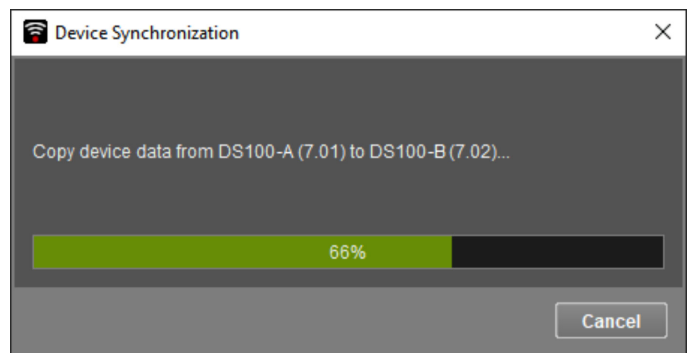
Please note that during operation redundant DS100 devices are not automatically synchronized by R1. Therefore make sure no other controllers in the network send inconsistent commands to the devices - be it OCA like from another instance of R1 or OSC from third-party devices.

If in doubt or after a failure of one device or an interruption of the communication to one of the devices, please repeat the «Sync» of the devices.

A typical use case is to «Read» the device which is initially active in the signal chain (e.g. Device A). Should it be necessary to switch to the redundant device B (timeout messages in R1, audio misbehavior, or interruption), the readout should also be switched to B. When device A is up and running again, a «Sync» B to A will replicate all current settings.

1.7 OSC control

The En-Snap cue automation software for Soundscape can send cues to redundant devices via OSC providing the choice of the device for the data readout.

OSC control of Soundscape sound object parameters (Position, Spread, Delay mode, En-Space send gain) from third-party devices like DAW plug-ins, mixing consoles, show control systems, or trackers can be managed and fed to redundant DS100 devices via the d&b En-Bridge software.

For more detailed descriptions of OSC control and tools, please refer to the respective OSC tool documentation.

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