

AVB-Manager

User Manual





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1 Preface

Thank you for choosing a Riedel product.

This document provides detailed information about the installation and operation of the Riedel AVB-Manager. This Operating Manual is dedicated to engineers and field technicians.

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AVB-Manager User Manual 1.2

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1.1 Version



Version Check

- The version is displayed in the startup splash screen and in the title bar of the AVB-Manager window.
- An information window can be opened by choosing the menu **Help** About.

File Views Options	Help			
Network Adapters: LA		About		
	B	Open log file folder	~	
	0	Open user manual		

🧟 Riedel AVB Manager	×
Riedel AVB Manager	
Version - 1.10.0.0	
Copyright © 2014	
Riedel Communications GmbH & Co. KG	
All Rights Reserved.	
Product details:	
IEEE Std Version: IEEE Std 1722.1™-2013	*
	*
http://www.riedel.net	ОК

Figure 1: About dialog

1.2 About AVB

Audio Video Bridging (AVB), also known as Ethernet AVB, is the common name for the set of technical standards developed by the IEEE 802.1 Audio Video Bridging Task Group. Ethernet AVB adds latency guarantees and bandwidth reservation for media streams to the existing Ethernet protocols. Ethernet AVB requires AVB-compatible Ethernet hardware (switches & NICs) but remains backward compatible with existing Ethernet standards. This means that only the sections of a network that are supposed to send or receive AVB streams need to be updated to AVB compatible hardware. Unlike IEEE 1588 PTP based standards, AVB includes a stream reservation protocol, allowing one to use the same network infrastructure for IP-services (e.g. fileserver access, corporate network) and communications without risking delays or a loss of audio.

AVB Standards

Ethernet AVB is built upon a basis of three major standards:

- 802.1Qav specifies queuing and forwarding rules that shape the traffic to avoid bottlenecks at any bridge or end station.
- P802.1Qat: defines the stream reservation protocol that sets up the path allowing a stream to go across the AVB cloud.
- P802.1AS allows microsecond accurate time synchronization across all AVB nodes.

Media is packetized following the IEEE P1733 and IEEE P1722 standards.



The AVB communication protocol works on layer 2. Hence, it is not necessary to open any port in the firewall on the operating PC.



The AVB commands are based on the AVB standards and only working if supported by the entity.



2 Installation

This chapter describes the installation procedure of the AVB-Manager.

The installation of the AVB-Manager includes also the mandatory installation of :

- Microsoft .NET Framework 4.0.30319
- WinPcap 4.1.3

The installation of these products will be skipped if they are already installed on the target PC.

> Start the installation by executing the Installer.exe file



Figure 2: Installation File

The mandatory installations are displayed in the next window. Already installed packages are unchecked and tagged with the information (Installed).

> Click Install to proceed

ान्न Riedel AVB Manag	er Installer
긢	Install the Riedel AVB Manager and the required components if not installed:
	dottVetFx40_Full_x86_x64.exe (Installed) WinPcap_4_1_3.exe AvbManagerSetup.msi
Windows 7 SP1 (x64)	Install

Figure 3: AVB Manager Installer



> Click Next to proceed

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Riedel AVB Manager Setup	
	Welcome to the Riedel AVB Manager Setup Wizard
	The Setup Wizard will install Riedel AVB Manager on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
	₽∥RIEDEL
	Back Next Cancel

Figure 4: AVB Manager Setup

The destination folder can be defined in the next window.

> Click Next to proceed



Figure 5: AVB Manager Setup - Destination Folder



Now the installer is ready to install the AVB-Manager.

> Click Install to proceed

👸 Riedel AVB Manager Setup	
Ready to install Riedel AVB Manager	100 A
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.	
Back Install	Cancel

Figure 6: AVB Manager Setup - Ready to Install

> Clicking *Finish* exits the installer



Figure 7: AVB Manager Setup - Installation completed

Another windows informs about the successful installation of all packages.

> Clicking OK to close the installer



Figure 8: AVB Manager Installer - Successful Installation

3 AVB-Manager

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This chapter describes the operation of the AVB-Manager.

The AVB-Manager can be started by double clicking the desktop icon.



Riedel AVB Manager Figure 9: Desktop Icon of the AVB-Manager

Multiple Instances

It is possible to start for each network adapter a separate instance of the AVB-Manager. The entity id of an instance is generated from the network adapter mac address. An instance set a mutex object to protect the generated entity ID against other instances. The user settings are stored in the registry to save the settings per instance.

Command Line Option

The AVB-Manager can also be started with command line options.

The command line option /? or /help displays an overview about all supported commands.



Figure 10: Command line description



3.1 Main-Window

The main window contains 5 areas:

Mair	n-Menu	Network Adapters View-Selector	
🔏 Riedel AVB Mana	ager Versio	on: 1.10.0.0 Beta	X
File Views Ontio	ons Heln		
The Tens Open			
Network Adapters	LAN-on	board 🝸 🌌 🚉 🛓	
Entity Properties 🗙		Views	÷
Entity id	Name	Group Acquire state Lock state ("No entity selected" Descriptor Values	
0x197CFFFE001D	46 X8 - 10	046 Connect AVB	~
Logging View			→ ậ
Timestamp	Туре	Message Logging-View	
10:47:28.909 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand *
10:47:28.910 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.910 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.910 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.911 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.911 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.912 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.912 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.912 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
10:47:28.913 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand E
10:47:28.913 AM	INFO	GET_STREAM_INFO Response from Entity 0x197cfffe001d46: State: Not_Implemented. '9/3/2014 10:47:28 AM - Com	mand
			+

Figure 11: AVB-Manager main window (click to jump to the respective chapter)



Move the Docking Windows

The docking windows can be moved by drag'n'drop.

Click and hold the desired headline and move it to the new position - also outside the AVB-Manager window.

The arrows on the top, bottom, left and right side as well as in the middle in the AVB-Manager window allows the docking of the window to the respective position. While hovering over the arrows, a blue shadow shows the new area of the docking window.

🔏 Riedel AVB Manag	ger Version: 1.10.0.0 Beta
File Views Option	ins Help
Network Adapters:	LAN-onboard 🔹 🚰 😳 🛓
Entity Properties X Logging View	
	INFO GET_STREAM_INFO Response from Entity 0x197CffFe001d48 State: Not_Implemented. 9/3/2014_104728 AM - Commat INFO GET_STREAM_INFO Response from Entity 0x197CffF001d48 State: Not_Implemented. 9/3/2014_104728 AM - Commat INFO GET_STREAM_INFO Response from Entity (Implemented. 9/3/2014_104728 AM - Commat
0:47:28.913 AM 10:47:28.913 AM 10:47:29 388 AM	INFO GET_STREAM JNFO Response from ELL III JIddé: State: Not_Implemented. 9/3/2014 10:47:28 AM - Comma INFO GET_STREAM JNFO Response from Entity 0 fffe001dd6: State: Not_Implemented. 9/3/2014 10:47:28 AM - Comma INFO State of descriptor statements. State may use her read all descriptors all tack have been done from Entity 0/07/fff
4	In the plane of descriptor scattering of a set in a set of a descriptors, and asks have been done normetricity of set of the set of
4m	

Figure 12: Move Docking Window

The docking windows can also be stacked with other docking windows onto a staple. To do so, drag'n'drop the docking window onto the middle icon in the center. In this case a docking windows can be displayed by clicking on the respective tab below.

Activork Adapters.	LAN-onboard 🔹 🚰	1 k				
tity Properties 🗙				1		
			ock state	No entity selected*		
			-			
1				nd ew		~ 0
-				Imestamp Type 10:47:28.910 AM INFO		Ent *

Figure 13: Staple Docking Window



3.1.1 Main Menu

File Views Options Help Figure 14: Main Menu		
File Views Options Help	Exit	Closes the AVB-Manager application.
File Views Options Help	Entity Properties	Open the <u>Entity Properties</u> View in the Topic-Content area.
Connection Management	Connection Management	Open the <u>Connection Management</u> View in the Topic-Content area.
	Firmware Update	Open the <u>Firmware Update</u> View in the Topic-Content area.
File Views Options Help	Settings	Displays the <u>Settings</u> dialog.
AVB Manager properties	AVB Manager properties	Displays the <u>windows</u> to enter the entity name of the AVB Manager.
File Views Options Help	About	Displays the <u>About</u> dialog
About	Open log file folder	Opens the folder of the AVB-Manager log files in the windows explorer.
Open user manual	Open user manual	Opens the user manual in windows- help format.

3.1.2 Settings Dialog

	Entity Properties options	
	Show descriptors in Entity Properties view in expert mode	
	Read all configurations of entities on startup	
en-GB 🔻	Primarily preferred language	
de-DE 🔻	Secondarily preferred language	
	Connection Management options	
Exp	and Matrix per default, only recommended for small systems.	
Use	regular expression pattern in name filter per default	
	Firmware Update options	
Reb	oot entity after firmware update	

Figure 15: Settings dialog

Entity Property options (active after restarting the AVB Manger)	Show descriptors in Entity Properties view in expert mode By default only the major Descriptor Values are displayed. Enabling this checkbox displays all available Descriptor Values in the respective Descriptor groups.			
	Read all configurations of an entity on startup By default all configurations stored in an entity will be read on startup of the AVB Manager. This box can be unchecked to reduce network traffic and to speed up startup delay. In this case only the active configuration will be read during startup of the AVB Manager.			
	Primarily preferred language	Changes the language of the 'Locale'		
	Secondarily preferred language	descriptor, if supported by the entity.		
Connection Matrix options (active after re-opening the Connection Management tab)	 Expand Matrix per default, only recommended for small systems By default the Connection Management opens with collapsed device Matrix. This box can be checked to expand the view and show all available streams. This mode requires more system performance during startup. Hence, this function should only activated for small systems. Use regular expression pattern in name filter per default If checked, the checkboxes in the Connection Management properties can abe default. 			
Firmware Update options (only working if supported by the entity)	Reboot entity after Firmware Update per default			



3.1.3 AVB Manager Network Info



Figure 16: AVB Manager Network Info

In this windows the entity name of the AVB Manager is entered. Furthermore the Global Unique Identifier of the AVB Manager is displayed.

3.1.4 Network Adapters



Figure 17: Network Adapters

In this field the network adapter needs to be selected, which is connected to the AVB network. After changing the network adapter, all entities will be (re)discovered.

3.1.5 View-Selector

In this area the active View can be selected.



Figure 18: View-Selector

The selected Views are displayed in separate tabs in the <u>Views</u> area. The Views can be switched by clicking on the respective tab.

Entity Properties	х	Connection Management	Firmware Update

Figure 19: Views-Tabs (click to jump to the respective chapter)



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3.1.6 Logging-View

System messages and occurrences can be found in the logging view.

	Logging View			
	TimeStamp	TraceLevel	Message	
	02:11:03.409	INFO	Starting Trace of Riedel AVB Manager (1.0.1.0) on Donnerstag, 28.11.13, at 02:11:03.409	^
	02:11:11.350	INFO	State of descriptor statemachine: Read entity descriptor command has been sent for Entity 197cfffe422313	-
	02:11:11.397	INFO	Request ACMP Talker and Listener Stream States of Entity 197cfffe422313	
	02:41:27.356	WARNING	GET_TX_CONNECTION_RESPONSE talker 197cfffe001fa8.0 has connected listener: 0.0 on connection index 1. The connection index 1 of the Response, doesn't match the the connection index 0 of the Command!	-
	02:41:27.356	VERBOSE	GET_TX_STATE_RESPONSE talker 197cfffe001d49.0 connectionstate: Disconnected: Command executed successfully.	
	03:04:50.954	ERROR	The connection index 1 is out of the talkers connection list. Unable to set listener 0.0 in talker connection list.	
	03:04:50.970	VERBOSE	Sniffed GET_TX_CONNECTION_RESPONSE talker 197cfffe002071.0 has connected listener: 0.0 on connection index 1.	~
L				_

Figure 20: Logging View

Timestamp	Timestamp of	the entry in the format hh:mm:ss.fff (seconds with 3 fractional digits)
TraceLevel	INFO	Short Information Messages
	VERBOSE	Detailed Information Messages
	WARNING	Minor Warning Messages
	ERROR	Major Error Messages
	EXCEPTION	Debug information
Message	Text message	

Descending / ascending sorting of the messages is possible by clicking in head row of the respective column.



Only the last 2500 messages are displayed in the Logging-View. Previous messages can be examined in the log files.



3.1.7 Log Files

The AVB-Manager stores every system message in a log file.

The log files of each instance are stored in a separate temp-folder of your system and can easily opened by using the main menu *Help-> open log file folder*.



Figure 21: Log File Folder

The AVB-Manager stores the last ten sessions in separate files. The eleventh session overwrites the first one. The maximum file size of a single log file is up to 100 MB and maximum 10% of free disk space. Log files of greater size are splitted into multiple files.

To reduce disk space the files will be compressed (.gz) after closing the AVB Manager session.

The syntax of the filename is as follows:

%temp%\Riedel Communications\AVBManager\ Multi-instance-Mutex_ Instance\ RiedelAVBController_ XX-YY#Timestamp#Counter_Wn_En_Xn# .log.gz					
Multi instance Mutex	entity id of the AVB-Manager				
ХХ	file number (01 10 / round robin)				
YY	increment of splitted files (01, 02, 03,)				
Timestamp	relative timestamp of file termination				
Counter	total number of all messages				
_En	number of Errors (<i>if existing</i>)				
_Wn	number of Warnings (<i>if existing</i>)				

The log of a session starts in the first increment file with the information about Stack, GUI version and the start time:

Starting Trace of Riedel AVDECC Controller Protocol Stack Relesase_v1.0.0 at 2014-04-1 3:38:25.557 PM Starting Trace of Riedel AVB Manager Version 1.6.3.0 (Build:Release) at 2014-04-1 3:38:25.635 PM

After this the different messages are listed, f.i. which network interface is connected to the AVB network or if new devices are detected or disconnected. The message Trace stopped is the last entry in the log file and is written by closing the AVB-Manager session. So it is possible to see if the log file is complete.

3.2 Views

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 \boldsymbol{R}

The single contents of each view are described in the next sub chapters:

Entity Properties 🗙	Connection	n M <mark>anage</mark> me	nt Firmware	Update		
Entity id	Name	Group	Acquire state	Lock state	"No entity selected"	Descriptor Values
						Search X

Figure 22: Views

3.2.1 Entity properties

The entity properties tab contains 3 areas:

Entity Properties 🗙			Ŧ
Entity id Name Group A	X8 - 1D46	Descriptor Values	
0x197CFFFE001D46 X8 - 1D46 Connect AVB	ENTITY 'X8 - 1D46'	2↓ Search	×
	CONFIGURATION 1: 'AES / Panel Configuration CONFIGURATION 2: 'PCM / 4-Wire Configuration Configurati	Access	
	AUDIO_UNIT.1: 'audio unit'	Acquire state Released	E
	STREAM_INPUT.1: 'stream input 1'	Lock state Unlocked	
	STREAM_INPUT.2: 'stream input 2'	⊿ Id	
	STREAM_INPUT.3: stream input 3 STREAM INPUT.4: 'stream input 4'	Descriptor type ENTITY	
	STREAM_INPUT.5: 'stream input 5'	* Name	
	STREAM_INPUT.6: 'stream input 6'	Entity name X8 - 1D46	*
< >	< H		
Entity-Table	Descriptors	Descriptor Values	

Figure 23: Entity properties (click to jump to the respective chapter)

3.2.1.1 Entity-Table

Entity id	Name	Group	Acquire state	Lock state	Online state	Identified at	Grandmaster id	Gptp domain	Interface index	Association id	Identify control index
0x197CFFFE001D46	X8 - 1D46	Connect AVB			Available		0x197CFFFE001D46	0x0	0	0x0	0
Figure 24: Er	ntity-Ta	ble									

The table of entities contains 12 columns:

Column	Content
Entity id	Global Unique Identifier of the entity.
Name	Identify the entity be user name.
Group	Identify multiple entities in a user defined group.
Acquire state	Check this box to obtain exclusive access to an entire entity or a sub-tree of objects. It also functions as a long-term lock on the entire entity or a sub-tree of objects. Unchecked this box to release the entity.



Lock state	Check this box to provide short-term exclusive access to the entity to perform atomic operations. When an entity is locked, it only accepts commands which alter state from the AVDECC Controller which locked the entity. Unchecked this box to unlock the entity.					
Online state	State of the	e entity				
	Available	Entity is available in the AVB network				
	Departing	Entity departed in the AVB network and is no longer available				
	Timeout	Entity doesn't send alive signal any more and is no longer available				
Identified at	Timestamp	of last recent identification notification, received from the entity				
Grandmaster id	This field is The value of If the GPTP gptp_grand domain tha If the GPTP gptp_grand	used to differentiate between devices in different gPTP domains. If gptp_grandmaster_id is per interface. _SUPPORTED flag is set in entity_capabilities then the master_id field is set to the Clock Identity of the grandmaster in the gPTP at this Entity is participating in on the interface transmitting the ADPDU. _SUPPORTED flag is not set in entity_capabilities then the master_id field is set to zero (0) on transmit and ignored on receive.				
Gptp domain	This field is The value of If the GPTP gptp_doma gPTP doma ADPDU. If the GPTP gptp_doma	used to differentiate between devices in different gPTP domains. If gptp_domain_number is per interface. _SUPPORTED flag is set in entity_capabilities then the in_number field is set to the domainNumber of the grandmaster in the in that this Entity is participating in on the interface transmitting the _SUPPORTED flag is not set in entity_capabilities then the in_number field is set to zero (0) on transmit and ignored on receive.				
Interface index	This field is interface th If the AEM_ interface_in transmittin; If the AEM_ interface_in	used to advertise the AEM AVB_INTERFACE descriptor that represents the at is transmitting this ADPDU. INTERFACE_INDEX_VALID flag is set in entity_capabilities then the idex field is set to the AVB_INTERFACE descriptor index of the interface g the ADPDU. INTERFACE_INDEX_VALID flag is not set in entity_capabilities then the idex field is set to zero (0) on transmit and ignored on receive.				
Association id	This field is allows each be associate If the ASSO this field is If ASSOCIAT set in the e If ASSOCIAT entity_capa AVDECC En field).	used to associate multiple AVDECC Entities into a logical collection. This loudspeaker of a multi-channel rig to be a separate AVDECC Entity but to ed by the AVDECC Controller into a single logical AVDECC Entity. CIATION_ID_SUPPORTED flag is not set in the entity_capabilities field then set to zero (0). TION_ID_SUPPORTED flag is set and ASSOCIATION_ID_VALID flag is not ntity_capabilities field then this field is set to zero (0). TION_ID_SUPPORTED and ASSOCIATION_ID_VALID flags are set in the bilities field then the value of this field is the EUI-64 used to associate the tities (all associated AVDECC Entities will have the same EUI-64 in this				
ldentify control index	This field is primary IDE If the AEM_ identify_co with the SE If the AEM_ the identify	used to advertise the appropriate AEM CONTROL descriptor that is the ENTIFY Control for the AVDECC Entity. IDENTIFY_CONTROL_INDEX_VALID flag is set in entity_capabilities then the ntrol_index field is set to a CONTROL descriptor index that can be used T_CONTROL AEM command. IDENTIFY_CONTROL_INDEX_VALID flag is not set in entity_capabilities then y_control_index field is set to zero (0) on transmit and ignored on receive.				

One entity can be selected by left-click in the respective row.

The selected row will be highlighted and the available descriptors are displayed.

It is not possible to select multiple rows at the same time.



A popup menu appears by right-click on an entity:

Entity id	Name	Group	Acquire state	Lock state	Online state	Identified at	Grandmaster id	Gptp domain	Interface index	Association id	Identify control index
0x197CFFFE001D46	X8 - 1D46	Connect ***	Baard Descript		ailable		0x197CFFFE001D46	0x0	0	0x0	0
			Read Connect	ion &							
			Identify Entity	1011							
			Reboot Entity								

Figure 25: Right-click on Entity-Table

Command	Function
Read Descriptors	All Descriptor Values of the selected entity will be read.
Read Connection	Talker and Listener Connection States of the selected entity will be read.
ldentify Entity	The respective entity signalize itself to be identified by the operator. The signalisation is device dependent, i.e. all LEDs will flash for a few seconds.
Reboot Entity	The selected entity will be rebooted.

3.2.1.2 Descriptors

X8 - 1D46	
ENTITY 'X8 - 1D46'	
CONFIGURATION.1: 'AES / Panel Configuration'	
AUDIO_UNIT.1: 'audio unit'	
STREAM_INPUT.1: 'stream input 1'	
STREAM_INPUT.2: 'stream input 2'	
STREAM_INPUT.3: 'stream input 3'	-
STREAM_INPUT.4: 'stream input 4'	
STREAM_INPUT.5: 'stream input 5'	
STREAM_INPUT.6: 'stream input 6'	
STREAM_INPUT.7: 'stream input 7'	
STREAM_INPUT.8: 'stream input 8'	
STREAM_INPUT.9: 'clock stream input'	
STREAM_OUTPUT.1: 'stream output 1'	
STREAM_OUTPUT.2: 'stream output 2'	
STREAM_OUTPUT.3: 'stream output 3'	
STREAM_OUTPUT.4: 'stream output 4'	
STREAM_OUTPUT.5: 'stream output 5'	
STREAM_OUTPUT.6: 'stream output 6'	
STREAM_OUTPUT.7: 'stream output 7'	
STREAM_OUTPUT.8: 'stream output 8'	
STREAM_OUTPUT.9: 'clock stream output'	
AVB_INTERFACE.1: 'avb interface'	
CLOCK_DOMAIN.1: 'clock domain'	*

Figure 26: Descriptor groups



The descriptors are grouped as follows:

Entity descriptor					This descriptor describes the highest level of the AVDECC Entity. It repeats some of the information contained within the ADP advertise for the AVDECC Entity as well as the information required to read the rest of the descriptors from the AVDECC Entity.
└ CONFIGURATION. <n></n>			RATIO	N. <n></n>	This descriptor describes an AVDECC entity model for a particular setup of the AVDECC entity. The descriptor tells the AVDECC Controller how many of each of the top level descriptors are present in the Configuration.
	F	AUD	IO_UN	IIT. <n></n>	This descriptor describes an Audio Unit within the AVDECC entity. An Audio Unit represents a single audio clock domain.
		F	STRE	AM_PORT_INPUT. <n> AM_PORT_OUTPUT.<n></n></n>	This descriptor describes a Stream Input or Output Port of the Unit.
			F	AUDIO_CLUSTER. <n></n>	This descriptor describes groups of audio channels in a Stream. An Audio Cluster could represent a stereo IEC 60958 encoded signal, a one or more channel multi bit linear audio signal, a MIDI signal, or a SMPTE signal.
			L	AUDIO_MAP. <n></n>	This descriptor describes a static mapping between an audio Stream's channels and an Audio Cluster's channels for Streams and Stream Ports that are located in the same Clock Domain.
		F	INTE INTE	RNAL_PORT_INPUT. <n> RNAL_PORT_OUTPUT.<n></n></n>	These descriptors describes the end of an internal connection between Units of the AVDECC entity.
		L	EXTE EXTE	RNAL_PORT_INPUT. <n> RNAL_PORT_OUTPUT.<n></n></n>	These descriptors describes an External Input Port or External Output Port of the unit.
	F	STRE STRE	AM_IN AM_O	NPUT. <n> UTPUT.<n></n></n>	These descriptors describes an IEEE Std 1722-2011 sourced or sinked Stream.
	┢	AVB	INTER	RFACE. <n></n>	This descriptor describes an interface implementing AVB functionality.
	F	CLO	CK_DO	MAIN. <n></n>	This descriptor describes a source of a common clock signal within an AVDECC entity.
	F	CLO	ск_ѕо	URCE. <n></n>	This descriptor describes a Clock Source.
	F	JACH JACH	(_INPL (_OUT	JT. <n> PUT.<n></n></n>	These descriptors describes an Input or Output Jack.
	F	MEN	IORY_	OBJECT. <n></n>	This descriptor describes a Memory Object representing a region of addressable memory that may be used for settings, log files, or firmware upgrades.
	F	CON	ITROL_	BLOCK. <n></n>	This descriptor describes a grouping of Controls within the Configuration or Unit. The Control Block contains an internal signal path and can be used to group a functional set of Controls together.
	F	CON	ITROL.	<n></n>	This descriptor describes a generic Control.
	L	LOC	ALE. <r< th=""><th> ></th><th>This descriptor describes a localization of the immutable strings within the AVDECC entity.</th></r<>	>	This descriptor describes a localization of the immutable strings within the AVDECC entity.
		L	STRI	NGS. <n></n>	This descriptor provides up to seven localized strings.

<n> indicates the number of each descriptor and is starting with 1.

One descriptor type can be selected by left-click in the respective row. The selected row will be highlighted and the available descriptor values will be displayed. It is not possible to select multiple rows at the same time.

Behind the descriptor is the Descriptor name displayed.

The *Descriptor name* is entered in the <u>descriptor values</u> within the group *Object name*. The *Descriptor name* is also displayed behind descriptor groups, for instance 'testing'.

Slot 1	Descriptor Values	
ENTITY 'Slot 1' CONFIGURATION.1: 'testing' CONFIGURATION.2: 'configuration'	Search Id Descriptor name Localized description Values	×

Figure 27: Descriptor name present

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If the Descriptor name is empty, the Localized description is displayed instead.



Figure 28: Descriptor name empty



3.2.1.3 Descriptor Values

€ 2↓ Search		×
Access		
Acquire state	Released	
Lock state	Unlocked	
▲ Id		=
Descriptor type	ENTITY	
Mame		
Entity name	X8 - 1D46	L
Group name	Connect AVB	
Values		
Association Id	0x0	
Configuration count	2	
Controller capabilities	00000001 ()	
Current configuration	2: PCM / 4-Wire Configuration	
	0000470B (EFU MODE,ADDRESS ACCESS SUPPORTE	

Figure 29: Descriptor-Values

The values can be displayed in two ways:

lcon	Function
•	category sorted
₹↓	alphabetically sorted

The search field can be used to exclude unwanted values. Only those kind of values will be displayed, whose names are matching the search criteria.

The descriptor values are separated various groups. Not every group is available in every descriptor. Following group and values are available in every descriptor group:

ı	А	
•	u	

Descriptor index	The Index of the descriptor in the descriptor model.
Descriptor type	The Type of the descriptor in the descriptor model.

Descriptor group specific values are listed below.

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- ENTITY Descriptor Values

X8 - 1D46		Descriptor Values		
ENTITY 'X8 - 1D46'	*	2 ↓ Search		×
 CONFIGURATION.1: 'AES / Panel Configuration' AUDIO UNIT.1: 'audio unit' 		Access		*
STREAM_INPUT.1: 'stream input 1'		Acquire state	Released	
STREAM_INPUT.2: 'stream input 2'		Lock state	Unlocked	
STREAM_INPUT.3: 'stream input 3'	-	▲ Id		
STREAM_INPUT.4: 'stream input 4'		Descriptor type	ENTITY	
STREAM_INPUT.6: 'stream input 6'		Mame		
STREAM_INPUT.7: 'stream input 7'		Entity name	X8 - 1D46	
STREAM_INPUT.8: 'stream input 8'		Group name	Connect AVB	
STREAM OUTPUT.1: 'stream output 1'		 Values 		
STREAM_OUTPUT.2: 'stream output 2'		Association Id	0x0	
STREAM_OUTPUT.3: 'stream output 3'		Configuration count	2	
STREAM_OUTPUT.5: 'stream output 5'		Controller capabilities	00000001 ()	
STREAM_OUTPUT.6: 'stream output 6'		Current configuration	2: PCM / 4-Wire Configuration	•
STREAM_OUTPUT./: stream output / STREAM_OUTPUT.8: 'stream output 8' STREAM_OUTPUT.9: 'clock stream output'			0000470B (EFU_MODE,ADDRESS_ACCESS_SUPPO	RTE -
AVB_INTERFACE.1: 'avb interface' CLOCK_DOMAIN.1: 'clock domain'	-			

Figure 30: ENTITY Descriptor Values

Access

Acquire state	The ACQUIRE_ENTITY command is used by a Controller to obtain exclusive access to an entire entity or a subtree of objects. It also functions as a long term lock on the entire entity or a sub-tree of objects.
Lock state	The LOCK_ENTITY command is used to provide short term exclusive access to the entity to perform atomic operations. When an entity is locked it only accepts commands which alter state from the Controller which locked the entity.

Entity name	Identify the entity be user name. Changes will be written directly to the network.
Group name	Identify multiple entities in a user defined group. Changes will be written directly to the network.

Values	
--------	--

Association id *	The association_id is used to associate multiple AVDECC entities into a logical collection.
Configuration count	Defines the count of configurations of the entity.
Controller capabilities *	Defines the controller capabilities of the AVDECC entity.
Current configuration	Show the current configuration of the entity. Select a new configuration in the drop down menu.
Entity capabilities *	Defines the The capabilities of the AVDECC entity
Firmware version	64-octet UTF-8 string containing the firmware version of the AVDECC Entity.
Globally unique identifier	Defines the global unique identifier of this entity.
Listener capabilities *	Defines the listener capabilities of the AVDECC entity.
Listener streams	The listener_stream_sinks field is used to identify the number of streams a Listener is capable of simultaneously sinking.
Model id	Identify the entity data model from a vendor.
Model name	The localized string reference pointing to the localized model name.
Serial number	Defines the serial number of the entity.



Talker capabilities *	Defines the talker capabilities of the AVDECC entity.
Talker streams	The talker_stream_sources field is used to identify the number of streams a Talker is capable of sourcing simultaneously.
Vendor id	Identify the manufacturer of the entity.
Vendor name	The localized string reference pointing to the localized vendor name.
* 1 1. 1. 1	

* only displayed if <u>expert mode</u> is enabled

- CONFIGURATION Descriptor Values

X8 - 1D46		Descriptor Values		
ENTITY 'X8 - 1D46'	*	₽ Z↓ Search		×
 CONFIGURATION.1: 'AES / Panel Configuration' AUDIO_UNIT.1: 'audio unit' STREAM_INPUT.1: 'stream input 1' 		 Id Descriptor index 	1 (Unique Id 0)	
STREAM_INPUT.2: 'stream input 2' STREAM_INPUT.3: 'stream input 3'	Descriptor type Object Name	CONFIGURATION		
STREAM_INPUT.5: 'stream input 5'		Descriptor name	AES / Panel Configuration	
STREAM_INPUT.6: 'stream input 6'		Localized description	configuration	=
STREAM_INPUT.3: 'stream input /' STREAM_INPUT.8: 'stream input 8' STREAM_OUTPUT.3: 'stream output 1' STREAM_OUTPUT.2: 'stream output 2' STREAM_OUTPUT.3: 'stream output 3' STREAM_OUTPUT.4: 'stream output 4' STREAM_OUTPUT.5: 'stream output 4' STREAM_OUTPUT.5: 'stream output 5' STREAM_OUTPUT.5: 'stream output 6' STREAM_OUTPUT.6: 'stream output 7' STREAM_OUTPUT.8: 'stream output 7' STREAM_OUTPUT.8: 'stream output 7' STREAM_OUTPUT.9: 'clock stream output' AVP_INTERACE 1: 'stream output'		4 Values		
		Descriptors counts	MEMORY_OBJECT count: 2 LOCALE count: 1 AUDIO_UNIT count: 1 STREAM_INPUT count: 9 STREAM_OUTPUT count: 9 JACK_INPUT count: 8 JACK_OUTPUT count: 9 AVB_INTERFACE count: 1 CLOCK_SOURCE count: 3 CONTROL count: 1	•
CLOCK_DOMAIN.1: 'clock domain'	-			

Figure 31: CONFIGURATION Descriptor Values

Descriptor values of the CONFIGURATION and of all Descriptors in this group:

Object Name

Descriptor name	The object name of the descriptor.
Localized description	The index of the descriptor in the descriptor model.

Values *

Descriptors counts	The number of descriptor counts in the descriptor_counts field. This is referred to as N.
Descriptors counts count	The number of descriptor counts in the descriptor_counts field. This is referred to as N.
Descriptors counts offset	The offset to the descriptor_counts field from the start of the descriptor.

AUDIO_UNIT Descriptor Values

X8 - 1D46		Descriptor Values		
ENTITY 'X8 - 1D46'	*	2 ↓ Search		×
 ENTITY 'X8 - 1D46' CONFIGURATION.1: 'AES / Panel Configuration' AUDIO_UNIT.1: 'audio unit' STREAM_INPUT.1: 'stream input 1' STREAM_INPUT.2: 'stream input 2' STREAM_INPUT.3: 'stream input 3' STREAM_INPUT.4: 'stream input 4' STREAM_INPUT.5: 'stream input 4' STREAM_INPUT.6: 'stream input 5' STREAM_INPUT.7: 'stream input 7' STREAM_INPUT.7: 'stream input 7' STREAM_INPUT.7: 'stream input 7' STREAM_INPUT.8: 'stream input 8' STREAM_INPUT.9: 'clock stream input' STREAM_OUTPUT.1: 'stream output 1' STREAM_OUTPUT.2: 'stream output 2' STREAM_OUTPUT.3: 'stream output 4' 	*	Search Search Id Descriptor index Descriptor type Object Name Descriptor name Localized description Values Base combiner Base control Base control Base control block Base demultiplexer	1 (Unique Id 0) AUDIO_UNIT audio unit 1 1 1 1	
STREAM_OUTPUT.5: 'stream output 5' STREAM_OUTPUT.6: 'stream output 6' STREAM_OUTPUT.7: 'stream output 7'		Base external input port Base external output p	1 1	
STREAM_OUTPUT.8: 'stream output 8' STREAM_OUTPUT.9: 'clock stream output' AVB_INTERFACE.1: 'avb interface' CLOCK_DOMMIN 1: 'clock domain'		Base internal input port	1	*

Figure 32: AUDIO_UNIT Descriptor Values

Values Base combiner* The index of the first SIGNAL COMBINER descriptor. Base control * The index of the first CONTROL descriptor. Base control block * The index of the first CONTROL BLOCK descriptor. Base demultiplexer * The index of the first SIGNAL DEMULTIPLEXER descriptor. Base external input port The index of the first input EXTERNAL_PORT_INPUT descriptors. The index of the first output EXTERNAL_PORT_OUTPUT descriptors. Base external output port The index of the first input INTERNAL JACK INPUT and Base internal input port INTERNAL PORT INPUT descriptors. The index of the first output INTERNAL JACK OUTPUT and Base internal output port INTERNAL PORT OUTPUT descriptors. Base matrix * The index of the first MATRIX descriptor. Base mixer * The index of the first MIXER descriptor. Base multiplexer* The index of the first SIGNAL_MULTIPLEXER descriptor. The index of the first SIGNAL SELECTOR descriptor. Base signal selector * Base splitter * The index of the first SIGNAL_SPLITTER descriptor. Base stream input port The index of the first STREAM PORT INPUT descriptor. Base stream output port The index of the first STREAM PORT OUTPUT descriptors. Base transcoder * The index of the first SIGNAL_TRANSCODER descriptor. Clock domain index The descriptor index of the CLOCK DOMAIN descriptor describing the clock domain for the unit. Current sampling rate The current sample rate of this audio unit. Number of combiners * The number of signal combiners within this audio unit. Number of control blocks * The number of controls within this audio unit. Number of controls * The number of controls within this audio unit. Number of demultiplexers * The number of signal demultiplexers within this audio unit. Number of external input ports The number of external input ports used by this audio unit. Number of external output ports The number of external output ports used by this audio unit. Number of internal input ports The number of internal input ports used by this audio unit. Number of internal output ports The number of internal output ports used by this audio unit. Number of matrices * The number of matrices within this audio unit. Number of mixers * The number of mixers within this audio unit.



Number of multiplexers *	The number of signal multiplexers within this audio unit.
Number of signal selectors *	The number of signal selectors within this audio unit
Number of splitters *	The number of signal splitters within this audio unit.
Number of stream input ports	The number of input stream ports used by this audio unit.
Number of stream output ports	The number of output stream ports used by this audio unit.
Number of transcoders *	The number of signal transcoders within this audio unit.
Sampling rates count *	The number of sample rates in the sampling_rates field. The maximum value is 91 - (2*C) for this version of AEM.
Sampling rates offset *	The offset to the sample_rates field from the start of the descriptor.
Supported sampling rates	An array of 4-octet sample rates supported by this audio unit.
* 1 11 1 110 1 1	

* only displayed if <u>expert mode</u> is enabled

▼STREAM_PORT_INPUT/OUTPUT Descriptor Values

Figure 33: STREAM_PORT_INPUT Descriptor Values

The Values of the STREAM_PORT_INPUT Descriptor and STREAM_PORT_OUTPUT Descriptor are identical.

Values *			
Base cluster	The index of the first AUDIO_CLUSTER, VIDEO_CLUSTER or SENSOR_CLUSTER descriptor describing the clusters within the port.		
Base control	The index of the first CONTROL descriptor.		
Base map	The index of the first AUDIO_MAP, VIDEO_MAP or SENSOR_MAP descriptor which defines the mapping between the stream and the port.		
Clock domain index	The descriptor_index of the CLOCK_DOMAIN descriptor describing the Clock Domain for the port.		
Number of clusters	The number of clusters within the port. This corresponds to the number of AUDIO_CLUSTER, VIDEO_CLUSTER, or SENSOR_CLUSTER descriptors which represent these clusters.		
Number of controls	The number of Controls within this Stream Port.		
Number of maps	The number of map descriptors used to define the mapping between the stream and the port.		
Port flags	Flags describing capabilities or features of the port.		
* a ply displayed if available is a photo			

AUDIO_CLUSTER Descriptor Values

X8 - 1D46		Descriptor Values		
ENTITY 'X8 - 1D46' ENTITY 'X8 - 1D46' ENTITY 'X8 - 1D46'	-	2 ↓ Search	×	
CONFIGURATION 1: 'AES / Panel Configuration' CONFIGURATION 2: 'PCM / 4-Wire Configuration'		▲ Id		
 AUDIO_UNIT.1: 'audio unit' 	E	Descriptor index	1 (Unique Id 0)	
STREAM_PORT_INPUT.1		Descriptor type	AUDIO_CLUSTER	
AUDIO_CLUSTER.2: NO_STRING' AUDIO_CLUSTER.2: NO_STRING' AUDIO_CLUSTER.3: NO_STRING' AUDIO_CLUSTER.5: NO_STRING' AUDIO_CLUSTER.6: NO_STRING' AUDIO_CLUSTER.7: NO_STRING' AUDIO_CLUSTER.7: NO_STRING' AUDIO_CLUSTER.8: NO_STRING' AUDIO_CLUSTER.10: NO_STRING' AUDIO_CLUSTER.11: NO_STRING' AUDIO_CLUSTER.12: NO_STRING' AUDIO_CLUSTER.12: NO_STRING' AUDIO_CLUSTER.12: NO_STRING' AUDIO_CLUSTER.13: NO_STRING' AUDIO_CLUSTER.14: NO_STRING'		Object Name		
		Descriptor name		
		Localized description	NO_STRING	
		 Values 		
		Block latency	0	
		Channel count	1	
		Format	MBLA	
		Path latency	0	
		Signal index	1	
		Signal output	1	
AUDIO_CLUSTER.15: 'NO_STRING'		Signal time		
AUDIO_CLUSTER.16: 'NO_STRING'		oignai type	EINTLIT	
AUDIO_MAP.1 AUDIO_MAP.2	-			
AUDIO_MAP.2	*			

Figure 34: AUDIO_CLUSTER Descriptor Values

Values	
Block latency	For an AUDIO_CLUSTER attached to a STREAM_PORT_INPUT, this is the latency in nanoseconds between the IEEE Std 1722-2011 reference plane and the output of the cluster. For an AUDIO_CLUSTER attached to a STREAM_PORT_OUTPUT, this is the latency in nanoseconds between the output of the previous block's output and the IEEE Std 1722-2011 reference plane. The previous block is the object identified by the signal_type and signal_index fields.
Channel count	The number of channels within the cluster.
Format	The format for each channel of this cluster, all channels within the Cluster have the same format.
Path latency	The latency in nanoseconds between the IEEE 1722-2011 timing reference plane and the opposite end of the currently selected signal path. This does not include any latency added by a DELAY Control. The path_latency field is used to inform smart Controllers of the extra latency to get the samples to the output, so that outputs across multiple entities can be sample aligned.
Signal index	The descriptor_index for the signal source of the cluster.
Signal output	The index of the output of the signal source of the control. For a signal_type of SIGNAL_SPLITTER or SIGNAL_DEMULTIPLEXER this is which output of the object it is being source from, for a signal_type of MATRIX this is the column the signal is from and for any other signal_type this is zero (0).
Signal type	The descriptor_type for the signal source of the cluster.



AUDIO_MAP Descriptor Values

X8 - 1D46		Descriptor Values	
ENTITY 'X8 - 1D46' CONFIGURATION.1: 'AES / Panel Configuration'	*	E A Ld	×
 CONFIGURATION.2: 'PCM / 4-Wire Configuration' AUDIO_UNIT.1: 'audio unit' STREAM_PORT_INPUT.1 AUDIO_CLUSTER.1: 'NO_STRING' AUDIO_CLUSTER.2: 'NO_STRING' AUDIO_CLUSTER.3: 'NO_STRING' AUDIO_CLUSTER.4: 'NO_STRING' 	ш	Descriptor index Descriptor type	1 (Unique Id 0) AUDIO_MAP
	1	Values Mappings Mappings	stream.ch <-> cluster.ch
AUDIO_CLUSTER.5: NO_STRING AUDIO_CLUSTER.6: 'NO_STRING' AUDIO_CLUSTER.7: 'NO_STRING'		Number of mappings	0
AUDIO_CLUSTER.9: 'NO_STRING' AUDIO_CLUSTER.9: 'NO_STRING' AUDIO_CLUSTER.11: 'NO_STRING' AUDIO_CLUSTER.12: 'NO_STRING' AUDIO_CLUSTER.13: 'NO_STRING' AUDIO_CLUSTER.14: 'NO_STRING' AUDIO_CLUSTER.15: 'NO_STRING' AUDIO_CLUSTER.15: 'NO_STRING' AUDIO_CLUSTER.15: 'NO_STRING' AUDIO_CLUSTER.15: 'NO_STRING'			
AUDIO_MAP.2	-		

Figure 35: AUDIO_MAP Descriptor Values

Values	
Mappings	The audio channel to stream index and steam channel mappings.
Mappings offset	The offset from the start of the descriptor for the first octet of the mapping_stream_channel[0] string. This field is 8 for this version of AEM.
Number of mappings	The number of channel mappings within the descriptor. The value of this field is referred to as N. The maximum value of this field is 62 for this version of AEM.

INTERNAL_PORT_INPUT/OUTPUT Descriptor Values

X8 - 1D46		Descriptor Values		
▲ ENTITY 'X8 - 1D46'	*	€ Search		×
 CONFIGURATION.1: 'AES / Panel Configuration' CONFIGURATION.2: 'PCM / 4-Wire Configuration' AUDIO_UNIT.1: 'audio unit' STREAM_PORT_INPUT.1 STREAM_PORT_INPUT.2 STREAM_PORT_INPUT.3 STREAM_PORT_INPUT.4 STREAM_PORT_INPUT.5 STREAM_PORT_INPUT.6 STREAM_PORT_INPUT.6 STREAM_PORT_INPUT.7 STREAM_PORT_INPUT.8 STREAM_PORT_OUTPUT.1 STREAM_PORT_OUTPUT.2 STREAM_PORT_OUTPUT.3 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.4 STREAM_PORT_OUTPUT.6 STREAM_PORT_OUTPUT.7 STREAM_PORT_OUTPUT.4 	u u	 Id Descriptor index Descriptor type Values Base control Block latency Clock domain index Internal index 	1 (Unique Id 0) INTERNAL_PORT_INPUT 1 0 1 1	
		Number of controls Port flags Signal index Signal output Signal type	0 00000000 () 1 0 ENTITY	

Figure 36: INTERNAL_PORT_INPUT Descriptor Values

The Values of the INTERNAL_PORT_INPUT Descriptor and INTERNAL_PORT_OUTPUT Descriptor are identical.

Values *	
Base control	The index of the first CONTROL descriptor.
Block latency	For an INTERNAL_PORT_INPUT this is the latency in nanoseconds between the physical pins of the Jack or pads on the PCB and the Port's output. For an INTERNAL_PORT_OUTPUT, this is the latency in nanoseconds between the output of the previous block and the physical pins or pads.
Clock domain index	The descriptor_index of the CLOCK_DOMAIN descriptor describing the Clock Domain for the port.
Internal index	The descriptor_index for the INTERNAL_PORT_INPUT or INTERNAL_PORT_OUTPUT descriptor sourcing or sinking this port on the other unit.
Number of controls	The number of Controls within this External port.
Port flags	Flags describing capabilities or features of the port.
Signal index	The descriptor_index for the signal source of the port.
Signal output	The index of the output of the signal source of the Port. For a signal_type of SIGNAL_SPLITTER or SIGNAL_DEMULTIPLEXER this is which output of the object it is being source from, for a signal_type of MATRIX this is the column the signal is from and for any other signal_type this is zero (0).
Signal type	The descriptor type for the signal source of the port.



▼EXTERNAL_PORT_INPUT/OUTPUT Descriptor Values

X8 - 1D46		Descriptor Values		
 ENTITY 'X8 - 1046' CONFIGURATION.1: 'AES / Panel Configuration' CONFIGURATION.2: 'PCM / 4-Wire Configuration' AUDIO_UNIT.1: 'audio unit' 	*	2 ↓ Search		×
		4 Id		
		Descriptor index	1 (Unique Id 0)	
STREAM_PORT_INPUT.1	Ξ.	Descriptor type	EXTERNAL_PORT_INPUT	
 STREAM_PORT_INPUT.2 STREAM_PORT_INPUT.3 STREAM_PORT_INPUT.4 STREAM_PORT_INPUT.5 STREAM_PORT_INPUT.6 STREAM_PORT_INPUT.7 STREAM_PORT_INPUT.8 STREAM_PORT_OUTPUT.1 STREAM_PORT_OUTPUT.2 		 Values 		
		Base control	1	
		Block latency	0	
		Clock domain index	1	
		lack index	1	
		Jack muex	5 L C	
		Number of controls	0	
STREAM_PORT_OUTPUT.3		Port flags	00000000 ()	
STREAM_PORT_OUTPUT.4		Signal index	1	
STREAM_PORT_OUTPUT.5		Signal output	0	
P STREAM_PORT_OUTPUT.6		orginar output		
STREAM PORT OUTPUT.8		Signal type	ENTITY	
EXTERNAL PORT INPUT.1				
EXTERNAL_PORT_INPUT.2				
EXTERNAL PORT INPUT.3	-			

Figure 37: EXTERNAL_PORT_INPUT Descriptor Values

The Values of the *EXTERNAL_PORT_INPUT* Descriptor and *EXTERNAL_PORT_OUTPUT* Descriptor are identical.

Values *	
Base control	The index of the first CONTROL descriptor.
Block latency	For an EXTERNAL_PORT_INPUT this is the latency in nanoseconds between the physical pins of the Jack or pads on the PCB and the Port's output. For an EXTERNAL_PORT_OUTPUT, this is the latency in nanoseconds between the output of the previous block and the physical pins or pads.
Clock domain index	The descriptor_index of the CLOCK_DOMAIN descriptor describing the Clock Domain for the port.
Jack index	The descriptor_index for the JACK_INPUT or JACK_OUTPUT for the port.
Number of controls	The number of Controls within this External port.
Port flags	Flags describing capabilities or features of the port.
Signal index	The descriptor_index for the signal source of the port.
Signal output	The index of the output of the signal source of the Port. For a signal_type of SIGNAL_SPLITTER or SIGNAL_DEMULTIPLEXER this is which output of the object it is being source from, for a signal_type of MATRIX this is the column the signal is from and for any other signal_type this is zero (0).
Signal type	The descriptor_type for the signal source of the port.



✓ STREAM_INPUT/OUTPUT Descriptor Values

Figure 38: STREAM_INPUT Descriptor Values

The Values of the STREAM_Input Descriptor and STREAM_Output Descriptor are identical.

Values	
AVB interface index	The descriptor_index of the AVB_INTERFACE from which this stream is sourced or to which it is sinked.
Backed up talker guid *	The GUID of the Talker that this stream is backing up.
Backed up talker unique *	The Unique ID of the Talker that this stream is backing up.
Backup talker guid 0 *	The primary backup Talker's GUID.
Backup talker guid 1 *	The secondary backup Talker's GUID.
Backup talker guid 2 *	The tertiary backup Talker's GUID.
Backup talker unique 0 *	The primary backup Talker's Unique ID.
Backup talker unique 1 *	The secondary backup Talker's Unique ID.
Backup talker unique 2 *	The tertiary backup Talker's Unique ID.
Buffer length *	The length in nanoseconds of the MAC's ingress or egress buffer as defined in IEEE Std 1722-2011 Figure 5.4. For a STREAM_INPUT this is the MAC's ingress buffer size and for a STREAM_OUTPUT this is the MAC's egress buffer size. This is the length of the buffer between the IEEE Std 1722-2011 reference plane and the MAC.
Clock domain index	The descriptor_index of the clock domain providing the media clock for the stream.
Current format	The stream format of the current format.
Formats	Array of stream formats of the supported formats.
Formats offset *	The offset from the start of the descriptor for the first octet of the formats.
Number of formats *	The number of formats supported by this audio stream. The maximum value for this field is 47 for this version of AEM.
Stream flags	Flags describing capabilities or features of the stream.

Values of dynamically stream info *

F

ags	The flags field is set to an appropriate combination of the flags to indicate
	which fields have values to be set. The lower 16 bits of the flags map
	directly to the flags field of ACMP.



MSRP accumulated latency	The msrp_accumulated_latency field's use depends on if the command is sent to a STREAM_INPUT or a STREAM_OUTPUT. If it is sent to a STREAM_INPUT, then the msrp_accumulated_latency field is set to the accumulated_latency of the Stream's MSRP Talker Advertise if connected, or zero (0) otherwise. If it is sent to a STREAM_OUTPUT, then the msrp_accumulated_latency field is set to the last set value if it has been set since the Stream was connected, or the appropriate default value for the Stream's traffic class (2 milliseconds for Class A and 50 milliseconds for Class B) if it has not been set since the Stream was connected. The MSRP_ACC_LAT_VALID flag is set only when this field contains a valid accumulated_latency		
MSRP failure bridge_id MSRP failure code	The use of the msrp_failure_bridge_id and msrp_failure_code depends on if the command is sent to a STREAM_INPUT or a STREAM_OUTPUT. If it is sent to a STREAM_INPUT, then the msrp_failure_bridge_id and msrp_failure_code fields are set to the failure_bridge_id and failure_code of the Stream's MSRP Talker Failed if the Stream has received an MSRP Talker Failed, otherwise they contain zero (0). If it is sent to a STREAM_OUTPUT, then the msrp_failure_bridge_id and msrp_failure_code fields are set to the last set value if it has been set since the Stream was connected or zero (0) otherwise. The MSRP_FAILURE_VALID flag is set only when these fields		
Stream destination MAC	The stream_dest_mac field is set the destination MAC address of the Stream which has either been previously set or dynamically allocated or zero (00-00-00-00-00) if there is no address. The STREAM_DEST_MAC_VALID flag is set only when this field contains a valid destination address.		
Stream format	The stream_format field is set to the current format of the Stream. This is equivalent to the current_format field of the addressed descriptor.		
	Presets	A set of stream format presets. Select an stream format preset to set it to the entity.	
	Stream format description	The stream_format field is set to the current format of the Stream. This is equivalent to the current_format field of the addressed descriptor.	
Stream id	The stream_id field is set to the current id of the Stream, or zero (0) if the Stream is not connected and has not had a stream_id set. The flags field indicates if this is valid.		
Stream VLAN id	The stream_vlan_id field is set to the VLAN ID of the Stream or zero (0) if the Stream is not connected. The STREAM_VLAN_ID_VALID flag is set only when this field contains a valid VLAN ID.		

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◄ AVB_INTERFACE Descriptor Values

X8 - 1D46		Descriptor Values		
ENTITY 'X8 - 1D46' CONFIGURATION.1: 'AES / Panel Configuration' D AUDIO UNIT.1: 'audio unit'	*	▲ Dearch		×
				*
STREAM_INPUT.1: 'stream input 1'		Descriptor index	1 (Unique Id 0)	
STREAM_INPUT.2: 'stream input 2'		Descriptor type	AVB_INTERFACE	
STREAM INPUT 4: 'stream input 4'	E	E Object Name		
STREAM_INPUT.5: 'stream input 5'		Descriptor name		
STREAM_INPUT.6: 'stream input 6'		Localized description	avb interface	-
STREAM INPUT /: 'stream input /'		✓ Values		
STREAM INPUT.9: 'clock stream input'		Clock accuracy	0xFF	
STREAM_OUTPUT.1: 'stream output 1'		Clock class	0xFF	
STREAM_OUTPUT.2: 'stream output 2'		Clock identity	0x197CFFFE001D46	
STREAM_OUTPUT.4: 'stream output 4'		Domain number	0	
STREAM_OUTPUT.5: 'stream output 5' STREAM_OUTPUT.6: 'stream output 6' STREAM_OUTPUT.7: 'stream output 7' STREAM_OUTPUT.8: 'stream output 8'		Interface flags	0x0007 (GPTP_GRANDMASTER_SUPPORTED, GPTP_SUPPORTED, SRP_SUPPORTED)	
STREAM_OUTPUT.9: 'clock stream output'		Log announce interval	0	*
AVB_INTERFACE.1: 'avb interface'	-			
CLOCK_DOWAIN.1; Clock domain	*			

Figure 39: AVB_INTERFACE Descriptor Values

Values

Clock accuracy	The Clock Accuracy field of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, ff16 otherwise.
Clock class	The Clock Class field of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, ff16 otherwise.
Clock identity	The IEEE Std 802. AS-2011 clock identity of the interface.
Domain number	The Domain Number field of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, zero (0) otherwise.
Interface flags	The flags describing the features of the interface.
Log announce interval	The currentLogAnnounceInterval of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, zero (0) otherwise.
Log pdelay interval	The currentLogPDelayReqInterval of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, zero (0) otherwise.
Log sync interval	The currentLogSyncInterval of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, zero (0) otherwise.
Mac address	The MAC address of the interface.
Offset Scaled log variance	The Offset Scaled Log Variance field of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, 000016 otherwise.
Port number	The Port Number field of the interface as used by IEEE Std 802.1AS-2011 functionality of the AVB interface if supported, 0000 16 otherwise.
Priority1	The Priority1 field of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, ff16 otherwise.
Priority2	The Priority2 field of the IEEE Std 802. AS-2011 grandmaster functionality of the AVB interface if supported, ff16 otherwise.

Values of dynamically AS Path *				
Number of ClockIdentities	The count field is set to the number of ClockIdentities present in the path_sequence field.			
Path sequence	The path_sequence field is set to pathSequence of the latest IEEE Std 802.1AS-2011 Announce message PathTrace TLV.			



Values of dynamically AVB info *				
Flags	The flags field is set to a combination of values as appropriate from IEEE P1722.1™/D23 March 2013 Table 7.131 or zero (0).			
Gptp domain number	The gptp_domain_number field is set to the domainNumber of the current IEEE Std 802.1AS-2011 grandmaster as elected on this AVB Interface.			
Gptp grandmaster id	The gptp_grandmaster_id field is set to the ClockIdentity of the current IEEE Std 802.1AS-2011 grandmaster as elected on this AVB Interface.			
MSRP mappings	The msrp_mappings field of the GET_AVB_INFO response contains one or more mappings from traffic class to priority and VLAN ID. Offsets are based on the start of the msrp_mappings field. IEEE P1722.1™/D23 March 2013 Table 7.132 shows the msrp_mappings Format.			
msrp mapping count	The msrp_mappings_count field is set to the number of mappings present in the msrp_mappings field.			
Propagation delay	The propagation_delay field is set to the propagation delay in nanoseconds as reported by the IEEE Std 802.1AS-2011 pDelay mechanism.			

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CLOCK_DOMAIN Descriptor Values

X8 - 1D46	Descriptor Values		
CONFIGURATION.1: 'AES / Panel Configuration'	the search Search		
AUDIO_UNIT.1: 'audio unit'	/ Id		
STREAM_INPUT_2: stream input 1	Descriptor index	1 (Unique Id 0)	
STREAM_INPUT.3: 'stream input 3'	Descriptor type	CLOCK_DOMAIN	
STREAM_INPUT.4: Stream input 4	 Object Name 		
STREAM_INPUT.6: 'stream input 6'	Descriptor name		
STREAM_INPUT.7: 'stream input 7'	Localized description	clock domain	
STREAM_INPUT.8: 'stream input 8'	▲ Values		
STREAM_INPUT.9: clock stream input STREAM_OUTPUT.1: 'stream output 1'	Clock source index	1: 'AES' Type: EXTERNAL, ENTITY.1	
STREAM_OUTPUT.2: 'stream output 2'	Clock sources	1; 2; 3;	
STREAM_OUTPUT.3: 'stream output 3' STREAM_OUTPUT.4: 'stream output 4'	Clock sources count	3	
STREAM_OUTPUT.5: 'stream output 5'	Clock sources offset	76	
STREAM_OUTPUT.6: 'stream output 6'	-		
STREAM_OUTPUT.7: 'stream output 7'			
STREAM_OUTPUT.8: 'stream output 8'			
STREAM_OUTPUT.9: 'clock stream output'			
AVB_INTERFACE.1: 'avb interface'			
CLOCK_DOMAIN.1: 'clock domain'			
CLOCK_SOURCE.1: 'AES'			

Figure 40: CLOCK_DOMAIN Descriptor Values

11-1	
va	lues

Clock source index	The descriptor_index describes the current clock source for the clock domain. In the current configuration the user may select a new clock source for the clock domain Clock Source Types: INTERNAL: The clock is sourced within the entity such as from a crystal oscillator. EXTERNAL: The clock is sourced from an external connection on the entity (via a Jack). INPUT_STREAM: The clock is sourced from the media clock of an Input Stream. If clock Source Type of INPUT_STREAM, the corresponding Input Stream must have set the 'Clock_Sync_Source' flag.see 'AVnu PA1 Pro Audio Media Clocking Specification' document.
Clock sources *	The list of CLOCK_SOURCE descriptor indices which the clock_source_index may be set to.
Clock sources count *	The number of Clock Source indexes in the clock_sources field. The value of this field is referred to as C. The maximum value for this field is 249 for this version of AEM.
Clock sources offset *	The offset to the clock_sources field from the start of the descriptor. This is 76 for this version of AEM.



CLOCK_SOURCE Descriptor Values

X8 - 1D46		Descrip	otor Values		
AUDIO_UNIT.1: 'audio unit'	*	A A	Search		×
STREAM_INPUT.1: 'stream input 1' STREAM INPUT.2: 'stream input 2'		4 Id			
STREAM_INPUT.3: 'stream input 3'		De	scriptor index	1 (Unique Id 0)	
STREAM_INPUT.4: 'stream input 4'		De	scriptor type	CLOCK_SOURCE	
STREAM_INPUT.5: 'stream input 5'		4 Obj	ect Name		
STREAM_INPUT.0: stream input 0 STREAM_INPUT.7: 'stream input 7'	-	De	scriptor name	AES	
STREAM_INPUT.8: 'stream input 8'		Lo	calized description	clock source 1	
STREAM_INPUT.9: 'clock stream input'		▲ Val	ues		
STREAM_OUTPUT.2: 'stream output 2'		Clo	ock source flags	00000001 (STREAM_ID)	
STREAM_OUTPUT.3: 'stream output 3'		Clo	ock source identifier	0x303030303030303030	
STREAM_OUTPUT.4: 'stream output 4' STREAM_OUTPUT.5: 'stream output 5'		Clo	ock source location i	1	
STREAM_OUTPUT.6: 'stream output 6'		Clo	ock source location t	. ENTITY	
STREAM_OUTPUT.7: 'stream output 7'		Clo	ock source type	EXTERNAL	
STREAM_OUTPUT.8: 'stream output 8'		-			
AVB INTERFACE.1: 'avb interface'					
CLOCK_DOMAIN.1: 'clock domain'					
CLOCK_SOURCE.1: 'AES'					
CLOCK SOURCE.2: 'local clock'	+				

Figure 41: CLOCK_SOURCE Descriptor Values

Values

Clock source flags *	Flags describing capabilities or features of the clock source.
Clock source identifier *	The GUID of the source for this clock.
Clock source location index *	The descriptor_index of the object that this clock source is associated with.
Clock source location type *	The descriptor_type of the object that this clock source is associated with.
Clock source type	The type of clock source. INTERNAL: The clock is sourced from within th entity such as from a crystal oscillator. EXTERNAL: The clock is sourced from an external connection on the entity (via a Jack). INPUT_STREAM: The clock is sourced from the media clock of an Input Stream.

▼JACK_INPUT/OUTPUT Descriptor Values

X8 - 1D46		Descriptor Values			
STREAM_OUTPUT.9: 'clock stream output'	*	Search X			
AVB_INTERFACE.1: 'avb interface' CLOCK_DOMAIN.1: 'clock domain' CLOCK_SOURCE.2: 'local clock' CLOCK_SOURCE.3: 'stream input #9' JACK_INPUT.1: 'jack input 1 JACK_INPUT.2: 'jack input 2' JACK_INPUT.3: 'jack input 4' JACK_INPUT.3: 'jack input 4' JACK_INPUT.3: 'jack input 5' JACK_INPUT.5: 'jack input 5' JACK_INPUT.5: 'jack input 5' JACK_INPUT.5: 'jack input 6' JACK_OUTPUT.3: 'jack input 8' JACK_OUTPUT.3: 'jack output 1' JACK_OUTPUT.2: 'jack output 1' JACK_OUTPUT.3: 'jack output 2' JACK_OUTPUT.3: 'jack output 4' JACK_OUTPUT.3: 'jack output 4' JACK_OUTPUT.5: 'jack output 4'	L.	 Id Descriptor index Descriptor type Object Name Descriptor name Localized description Values Base control Jack flags Jack type Number of controls 	1 (Unique Id 0) JACK_INPUT jack input 1 0003 (CLOCK_SYNC_SOURCE,CAPTIVE) AES_EBU (AES/EBU) 0		
JACK_OUTPUT.6: 'jack output 6' JACK_OUTPUT.7: 'jack output 6' JACK_OUTPUT.7: 'jack output 7' JACK_OUTPUT.8: 'jack output 8'					

Figure 42: JACK_INPUT Descriptor Values

The Values of the Jack_Input Descriptor and Jack_Output Descriptor are identical.

Values	
Base control *	The index of the first CONTROL descriptor.
Jack flags *	Flag describing capabilities or features of the Jack.
Jack type	The type of the jack.
Number of controls *	The number of controls within this jack.
*	



MEMORY_OBJECT Descriptor Values

X8 - 1D46		Descriptor Values		
JACK_INPUT.1: 'jack input 1'	*	€ Z ↓ Search		×
JACK_INPUT.2: 'jack input 2' JACK_INPUT.3: 'jack input 3' JACK_INPUT.3: 'jack input 4' JACK_INPUT.5: 'jack input 5' JACK_INPUT.7: 'jack input 7' JACK_OUTPUT.3: 'jack output 7' JACK_OUTPUT.3: 'jack output 1' JACK_OUTPUT.3: 'jack output 2' JACK_OUTPUT.3: 'jack output 2' JACK_OUTPUT.3: 'jack output 3' JACK_OUTPUT.4: 'jack output 4' JACK_OUTPUT.5: 'jack output 5' JACK_OUTPUT.5: 'jack output 6' JACK_OUTPUT.7: 'jack output 6' JACK_OUTPUT.7: 'jack output 7' JACK_OUTPUT.7: 'jack output 7' JACK_OUTPUT.7: 'jack output 7' JACK_OUTPUT.9: 'BNC clock output 1' MEMORY_OBJECT.2: 'debug log' CONTROL_BLOCK.1: 'control block'	ш	 Id Descriptor index Descriptor type Object Name Descriptor name Localized description Values Length Maximum length Memory object type Start address Target descriptor index Target descriptor type 	1 (Unique Id 0) MEMORY_OBJECT firmware 0x800000 0x800000 FIRMWARE_IMAGE 0x400 1 0	
CONTROL_BLOCK.1: 'control block' CONTROL.1: 'NO_STRING' COALE.1 CONFIGURATION.2: 'PCM / 4-Wire Configuration'				

Figure 43: MEMORY_OBJECT Descriptor Values

Values

Length *	The 64 bit actual length of the memory object. This value will change and will reflect the actual size of the data contained in the memory region described by this memory object.
Maximum length *	The 64 bit maximum length of the memory object.
Memory object type	The type of the memory object.
Start address *	The 64 bit start address used for reading or writing the object's data.
Target descriptor index *	The descriptor_index of the object that is the target of the memory region. This is the object that the settings, log file or firmware applies.
Target descriptor type *	The descriptor_type of the object that is the target of the memory region. This is the object that the settings, log file or firmware applies.
* a plu diaplay ad if averant	

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CONTROL_BLOCK Descriptor Values

X8 - 1D46		Descriptor Values	
JACK_INPUT.1: 'jack input 1'	^	2 ↓ Search	×
JACK_INPUT.2: Jack input 2 JACK_INPUT 3: 'jack input 3'		▲ Id	
JACK INPUT.4: 'jack input 4'		Descriptor index	1 (Unique Id 0)
JACK_INPUT.5: 'jack input 5'		Descriptor type	CONTROL BLOCK
JACK_INPUT.6: 'jack input 6'		4 Object Name	
JACK_INPUT.7: 'jack input 7'		Descriptor name	
JACK_INPUT.8: Jack input 8		Descriptor name	
JACK OUTPUT.2: 'jack output 2'		Localized description	control block
JACK_OUTPUT.3: 'jack output 3'		Values	
JACK_OUTPUT.4: 'jack output 4'		Base control	1
JACK_OUTPUT.5: 'jack output 5'	1	Final control index	1
JACK_OUTPUT.6: 'jack output 6'		Number of controls	0
JACK_OUTPUT.8: 'jack output 8'	н		
JACK_OUTPUT.9: 'BNC clock output '	_		
MEMORY_OBJECT.1: 'firmware'	-		
MEMORY_OBJECT.2: 'debug log'			
CONTROL_BLOCK.1: 'control block'			
CONTROL 1: 'NO_STRING'			
CONFIGURATION.2: 'PCM / 4-Wire Configuration'	+		

Figure 44: CONTROL_BLOCK Descriptor Values

Values

Base control	The index of the first CONTROL descriptor.
Final control index	The index of the final CONTROL descriptor in the internal signal chain. If there is no internal signal chain, then this is set to zero (0).
Number of controls	The number of Control within this Control Block.



- CONTROL Descriptor Values

X8 - 1D46	Descriptor Values				
JACK_INPUT.1: 'jack input 1'	-	₹↓ Search		×	
JACK_INPUT.2: 'jack input 2'		4 Id			
JACK_INPUT.4: 'jack input 4'		Descriptor index	1 (Unique Id 0)		
JACK_INPUT.5: 'jack input 5'		Descriptor type	CONTROL		
JACK_INPUT.6: 'jack input 6'		Object Name			
JACK_INPUT.8: 'jack input 8'		Descriptor name			
JACK_OUTPUT.1: 'jack output 1'		Localized description	NO_STRING	-	
JACK_OUTPUT.2: 'jack output 2'		Values			
JACK_OUTPUT.4: 'jack output 4'		block latency	0		
JACK_OUTPUT.5: 'jack output 5'		control domain	0		
JACK_OUTPUT.6: 'jack output 6'		control latency	0		
JACK_OUTPUT.8: 'jack output 8'		control type	IDENTIFY (IEEE 1722a Working Group)		
JACK_OUTPUT.9: 'BNC clock output ' MEMORY_OBJECT.1: 'firmware' MEMORY_OBJECT.2: 'debug log'	E	control valuetype	CONTROL_LINEAR_UINT8, ReadWriteable, KnownAndCorrect		
CONTROL_BLOCK.1: 'control block'		number of values	1		
CONTROL 1: 'NO_STRING'		1.11		Ŧ	
 LOCALE.1 CONFIGURATION.2: 'PCM / 4-Wire Configuration' 	*				

Figure 45: CONTROL Descriptor Values

Values	
block latency	This is the latency in nanoseconds between the output of the previous block and it's output. The previous block is the object identified by the signal_type and signal_index fields. For a DELAY control, the value of the delay is not included in this value.
control domain	The domain that this control belongs to. An AVDECC Entity may have one or more control domains to restrict access to controls. By default an AVDECC Entity uses control domain 0 for all controls.
control latency	The worst case time in microseconds from when a control value change is received and when the control has completely switched to the new value.
control type	The type of the control. See Table 7.94 for the table of valid control types.
control valuetype	The type of the value contained in the control as defined in 7.3.5.1 . The control value type determines T, the size of a value entry in the value_details array.
number of values	The number of value settings this control has. The value of this field is referred to as N. The maximum value of this field is defined in the 'Max Value Count' column of Table 7.39.
reset time	The time period in microseconds from when a control is set with the SET_CONTROL command till it automatically resets to it's default values. When this is set to zero (0) automatic resets do not happen.
signal index	The descriptor_index for the signal source of the control.
signal output	The index of the output of the signal source of the control. For a signal_type of SIGNAL_SPLITTER or SIGNAL_DEMULTIPLEXER this is which output of the object it is being source from, for a signal_type of MATRIX this is the column the signal is from and for any other signal_type this is zero (0).
signal type	The descriptor_type for the signal source of the control.
values offset	The offset from the start of the descriptor for the first octet of the value_details. This field is 104 for this version of AEM.
Values details	
value detail	control specific value details

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- LOCALE Descriptor Values

X8 - 1D46		Descriptor Values	
JACK_INPUT.1: 'jack input 1'	*	2 ↓ Search	×
IACK_INPUT2: jack input 2		4 Id	
JACK INPUT.4: 'jack input 4'		Descriptor index	1 (Unique Id 0)
JACK_INPUT.5: 'jack input 5'		Descriptor type	LOCALE
JACK_INPUT.6: 'jack input 6'		 Values 	
JACK_INPUT.8: 'jack input 8'		base_string	0
JACK_OUTPUT.1: 'jack output 1'		local_identifier	en-US
JACK_OUTPUT.2: Jack output 2 JACK_OUTPUT.3: 'jack output 3'		number_of_strings	7
JACK_OUTPUT.4: 'jack output 4'			
JACK_OUTPUT.6: 'jack output 6'			
JACK_OUTPUT.7: 'jack output 7'			
JACK_OUTPUT.8: 'jack output 8'			
JACK_OUTPUT.9: 'BNC clock output '	- 2		
MEMORY_OBJECT.1: 'firmware'			
MEMORY_OBJECT.2: 'debug log'			
CONTROL_BLOCK.1: 'control block'			
CONTROL.1: 'NO_STRING'			
LOCALE.1			
CONFIGURATION.2: 'PCM / 4-Wire Configuration'	-		

Figure 46: LOCALE Descriptor Values

Values

base_string *	The descriptor index of the first STRINGS descriptor for this locale.
local_identifier	64 octet UTF-8 string containing the locale identifier.
number_of_strings *	The number of STRINGS descriptors in this locale. This es the same value for all locales in an AVDECC Entity.
*	

* only displayed if <u>expert mode</u> is enabled

- STRINGS Descriptor Values

X8 - 1D46	Descriptor Values	
JACK INPUT.3: 'jack input 3'	Search	×
JACK_INPUT.4: 'jack input 4'	✓ Id	
JACK_INPUT.5: 'jack input 5' JACK_INPUT.6: 'jack input 6'	Descriptor index	1 (Unique Id 0)
JACK_INPUT.7: 'jack input 7'	Descriptor type	STRINGS
JACK_INPUT.8: 'jack input 8'	Values	
JACK_OUTPUT.2: 'jack output 1'	string_0	configuration
JACK_OUTPUT.3: 'jack output 3'	string_1	audio unit
JACK_OUTPUT.4: 'jack output 4'	string_2	stream input 1
JACK_OUTPUT.6: 'jack output 6'	string_3	stream input 2
JACK_OUTPUT.7: 'jack output 7'	string_4	stream input 3
JACK_OUTPUT.8: 'jack output 8' JACK_OUTPUT.9: 'BNC clock output '	string_5	stream input 4
MEMORY_OBJECT.1: 'firmware'	string_6	stream input 5
MEMORY_OBJECT.2: 'debug log' CONTROL_BLOCK.1: 'control block' CONTROL.1: 'NO_STRING' LOCALE.1	_	
STRINGS.1 STRINGS.2 STRINGS.3	-	

Figure 47: STRINGS Descriptor Values

Values

string_x

64 octet UTF-8 string at index x.



3.2.2 Connection Management

The Connection Management tab contains 2 areas.

Properties			5	~												0											
 Connection mode Bidirectional connection 		Stream Connections	Listen		÷	Et	÷	Ŀ.		÷	÷.	сţ.:	SN	L			ž	1			ž	1			ž	1	ŧ
Device filter				=	т Ц	m di	m inp	m inp	a in	a i	m di	m inp	STRU	õ		ş	n i	3		5	, E	ş		67	Ē	8	
Talker device name		Refresh connection st	ates	ß	strea	strea	strea	strea	strea	strea	strea	strea	8			Ĕ	stre			Ĕ	ste			Ĕ	stre		
 Stream filter 																											
Stream format filter	NO_FILTER 💌	Talker		~										~		\sim		2		\checkmark				\sim			
Listener stream name		🖂 Slot 1														~	~				~			~			~
Talker stream name		stream outpu														Ħ				F				Ħ			
		stream outpu													0	۲				۲				۲			
		stream outpu															0			٥				٥			
		stream outpu																	0								
		stream outpu																			0						
		stream outpu																					0				
		stream outpu	~																						0		
		stream outpu	2																								0
		NO_STRING																									
		— TR P02																۵									
		stream outpu				0																					
		💮 TR P03	2																								
		+ TR P04																									
				5.																							21
Propertie	es									Co	onn	ec	tior	n N	lati	rix											

PropertiesConnection MaFigure 48: Connection Management (click to jump to the respective chapter)

3.2.2.1 Properties



Figure 49: Connection Management Properties

The filter fields can be used to exclude unwanted entities. Only those entities will be displayed, whose names are matching the search criteria. Use '*' for wildcard searching. Example: Use 'Dev*' or '*X8' or '*vice*' to find the name 'Device-X8'. Use '|' for OR-operation. Example: 'name1 | name2'

The Properties contains following fields:

Connection mode	
Bidirectional connection	If enabled, the manager tries to establish a bidirectional connection by default.
Device Filter	
Listener Device Name	Filter by listener device name to only show entities of filter categories.
Talker Device Name	Filter by talker device name to only show entities of filter categories.
Use regular expressions	If enabled, the manager interprets arbitrarily substrings in the filter field.

Stream Filter (Only Stream	ns with matching format win i	uspiayeu)
Stream format filter	No Filter	No Filter applied. Show all streams.
	AES Audio Format	Show only AES Audio Format streams.
	Mono PCM Audio Format	Show only Mono PCM Audio Format streams.
	Dual PCM Audio Format	Show only Dual PCM Audio Format streams.
	Only Clock Streams	Show only Clock Stream streams.
Listener stream name	Filter by listener stream nam	e to only show entities of filter categories.
Talker stream name	Filter by talker stream name	to only show entities of filter categories.
Use regular expressions	If enabled, the manager inte	rprets arbitrarily substrings in the filter field.

Stream Filter (only streams with matching format will be displayed)

3.2.2.2 **Connection Matrix**

The Connection Matrix contains 3 areas:

	Listener																								
Stream Connections	Slot 1	ream input	VO_STRING	R P02 -	tream input	R P03	tream input	R P04 -	tream input	R POS	tream input	R P06 -	tream input	R P07	tream input	R P08	tream input								
Talker		15	स्त र	रू ,	at ▼	₩ 2	র্চ ত	র্দ হ	st V									v" 							
🔵 5lot 1 🔛												\leq						~	<u> </u>					×	î
stream outpu 🗹																									
stream outpu 🗹												0													
stream outpu 🗹														0										C	
stream outpu 🔽																0								\square	
stream outpu 🗹																		0						\square	=
stream outpu 🗹																				0				\square	
stream outpu 🗹																						0		\square	
stream outpu 🗹																								0	
NO_STRING																								\square	
— TR P02 🗹	\mathbf{V}																								
stream outpu 🔽			0																					С	
🏽 TR P03 🛛 🗹	2																							C	
+ TR P04 🗹	2																							Г	~
	<																							>	
Talker										(Cro	SS	poi	ints	5										

Figure 50: Connection Matrix

υp

All Talkers of the AVB network are displayed vertically on the left side of the Connection Matrix. All Listeners are displayed horizontally on the top of the Connection Matrix.

Depending of the option setting Expand Matrix per default, the single channels of the entities are collapsed or expanded. Expanding and collapsing is done by clicking on following symbols:

Symbol	Meaning	
\odot	Collapsed device view	Only the name of entity is displayed.
-	Expanded device view	All channels of the entity are displayed.



The checkboxes next to the Talkers/Listeners name informs about at least one present connection. This checkbox is *only* for information purpose and can *not* be checked/unchecked. Exceptions are the checkboxes of the single channels of the Listeners. A checked checkbox can be unchecked by clicking on it. This will disconnect the Listener from the respective Talker.

Symbol	Meaning	
	Unchecked field	No connection set up.
\checkmark	Checked field	At least one connection is set up.
	Checked field (single channel of Listener)	At least one connection is set up. The Listener can be disconnected by unchecking this checkbox.

The crosspoints between the Talker and the Listeners informs about the connection between the respective entities. Following symbols are used:

Symbol	Meaning	
	Unconnected Crosspoint	The Listener is <i>not</i> connected to the Talker.
0	Connected Crosspoint	The Listener is connected to the Talker.
	Connection Error	Hovering over this item will show a tooltip about the error.
?	Unknown Status	The system wasn't able to read the Status of the entity.

Crosspoints



1	This The In th	checkbox indicates the connection status of the Listener entity. checkbox is checked if the Listener entity has at least one connection to a Talker. his case Listener entity ' <i>Slot 1</i> ' is connected to a Talker.
2	Expa The	anded view of Listener entity ' <i>Slot 1</i> '. single streams of the entity are visible.
3	Coll Only	apsed view of Listener entity ' <i>TR P03</i> '. y the entity is visible, the single channels are hidden.
4	This The In th This The 'GE	checkbox indicates the connection status of the Listener channel. checkbox is checked if the Listener channel has a connection to a Talker. his case channel ' <i>stream input</i> ' of Listener ' <i>TR P02</i> ' is connected to a Talker. connection can be disconnected by unchecking this box. connection state results of following command response: T_RX_STATE_RESPONSE', 'DISCONNECT_RX_RESPONSE' or 'CONNECT_RX_RESPONSE'.
5	This char In th This	checkbox indicates the connection status between the Talker stream and the Listener nnel. The checkbox is checked if the Talker stream is connected to the Listener channel. nis case stream ' <i>stream output 2</i> ' of Talker ' <i>Slot 1</i> ' is connected to Listener channel ' <i>stream input</i> '. connection can be disconnected by unchecking this box.
6	This The In th The 'GE	checkbox indicates the connection status between the Talker and Listener entity. checkbox is checked if there is at least one connection between the Talker and Listener entity. his case Listener entity ' <i>TR P03</i> ' is not connected to Talker entity ' <i>TR P05</i> '. connection state results of following command response: T_RX_STATE_RESPONSE', 'DISCONNECT_RX_RESPONSE' or 'CONNECT_RX_RESPONSE'.
7	This The In th The 'GE	checkbox indicates the connection status between the Listener channel and the Talker entity. checkbox is checked if the Listener channel has a connection to the Talker entity. nis case channel ' <i>stream input 8</i> ' of Listener ' <i>Slot 1</i> ' is connected to Talker entity ' <i>TR P08</i> '. connection state results of following command response: T_RX_STATE_RESPONSE', 'DISCONNECT_RX_RESPONSE' or 'CONNECT_RX_RESPONSE'.
8	This The In th The 'GE	checkbox indicates the connection status between the Talker stream and the Listener entity. checkbox is checked if the Talker stream has at least one connection to the Listener entity. his case stream ' <i>stream output 1</i> ' of Talker ' <i>TR P02</i> ' is connected to Listener entity ' <i>Slot 1</i> '. connection state results of following command response: T_TX_STATE_RESPONSE', 'GET_TX_CONNECTION_RESPONSE'.
9	This The In th	checkbox indicates the connection status of the Talker entity. checkbox is checked if the Talker entity has at least one connection to a Listener. his case Talker entity ' <i>TR P02</i> ' is connected to a Listener.
10	This The In th The 'GE	checkbox indicates the connection status of the Talker stream. checkbox is checked if the Talker stream has at least one connection to a Listener. his case stream ' <i>stream output 3</i> ' of Talker ' <i>Slot 1</i> ' is connected to a Listener. connection state results of following command response: T_TX_STATE_RESPONSE'.
		A Listener channel can be connected to only one Talker stream at the same time.

A Talkers stream can be connected to multiple Listener channels, if supported by the entity.



Tooltips

Hovering over an entity shows a tooltip:

Strei	am Connections	Listener	•	1				Â						Ð	+	Ð	+	Ð	+	Ð
Re	fresh connection st	ates	Franks Pan	Slot 1	stream inp	stream inp	stream inp		ame: nique: atus: onnec ream	strear Id: 3 Conn ted T ID: 7 MAC:	m inp ected alker: '1732	ut 4 0x19 14404 0:F0:	7cfffe 10837 A0:20	e0020 /12 0:74	74.0	TR P04	TR P05	TR P06	TR P07	TR P08
\odot	Franks Panel															٥				٥
+	Slot 1																			
\oplus	TR P02																			
+	TR P03	\checkmark																		
\oplus	TR P04	\checkmark																		
+	TR P05																			
\oplus	TR P06	\checkmark																		
+	TR P07	\checkmark																		
\oplus	TR P08																			

Figure 52: Tooltip

The contents of the tooltip depends on the type of entity (Talker/Listener/Entity/Channels):

er)
Name of the entity.
Name of the group of the entity.
Global Unique Identifier of the entity.
Software Version of the entity.
Grandmaster ld of the entity.
Entity vendor name
Entity model name

Channels (of Talker/Listener)

Name	Name of the entity.
Unique Id	The Index of the descriptor in the descriptor model.
Status	Connected/Disconnected
Connected Talker (Listener Channels only)	Entity ld of the connected Talker
Stream ID	The stream_id field is set to the current id of the Stream, or zero (0) if the Stream is not connected and has not had a stream_id set. The flags field indicates if this is valid.
Stream MAC	The stream_dest_mac field is set the destination MAC address of the Stream which has either been previously set or dynamically allocated or zero (00-00-00-00-00-00) if there is no address. The STREAM_DEST_MAC_VALID flag is set only when this field contains a valid destination address.
Connected Listener (Talker Channels only)	Number of connected Listeners and Entity ld of every connected Listener.

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Change Object Name

A right mouse click on the stream names shows a dialog window to change directly the object name of the respective entry.



Figure 53: Change Object Name

3.2.3 Firmware Update

The Firmware Update tab contains 2 areas:

rmware Update 🗙								
Entity Id 0x197CFFFE001D46	Name X8 - 1D46	Fw Version 2.23	Update state Inactive	Cancel Cancel	Update in %	Update progress	Online state Available	Load firmware file 'No file' Start update
	Entity-Table							Action-Buttons

Figure 54: Firmware Update (click to jump to the respective chapter)

3.2.3.1 Entity-Table

The table of entities contains 8 columns:

Column	Content								
Entity ld	Global Unique Identifier of the entitiesOnly entities with following conditions will appear:Entity must support a firmware updateEntity must have the memory descriptor 'firmware_image'								
Name	Name of the entity								
Fw Version	The actual Firmware Version								
Update State	Inactive	No Update process ongoing							
	UploadStarted 'UPLOAD' command has been sent								
	UploadInProgress	'UPLOAD' response has been received							
	StoreStarted 'STORE' command has been sent								
	StoreInProgress	'STORE' response has been received							
	StoreFinished	'OPERATION_STATUS" has reached 100%							
	Aborting	'ABORT' command has been sent							
	Aborted	'ABORT' response has been received							
	Error	Update aborted after error							
Cancel	Action button to car	ncel the firmware update							
Update in %	Display of the actua	l Update progress (percentage)							
Update progress	Display of the actua	l Update progress (horizontal bar)							
Online State	State of the stream								
	Available	Entity is available in the AVB network							
	Departing	Entity departed in the AVB network and is no longer available							
	Timeout	Entity doesn't send alive signal any more and is no longer available							

Multiple entities can be selected by left-click in the respective rows while pressing *SHIFT* or *CTRL* on the keyboard. The selected row will be highlighted.

A popup menu appears by right-click on an entity:

Entity Id	Name	Fw Version	Update state	Cancel	Update in %	Update progress	Online state	Load firmware file	'No file'
0x197CFFFE001D46	X8 - 1D46	2.23	Inactive	Cancel			Available		
			Identify Enti	ty N		<u></u>		Start update	
			Reboot Enti	ty L	3				

Figure 55: Right-click on Entity-Table

Command	Function
ldentify Entity	The respective entity signalize itself to be identified by the operator. The signalisation is device dependent, i.e. all LEDs will flash for a few seconds.
Reboot Entity	The selected entity will be rebooted.

3.2.3.2 Action-Buttons

There are 2 action buttons:

Button	Action
Load Firmware file	Opens a window to browse to the location of the firmware file
Start Update	Starts the Update procedure on all selected entities



4 How to ...

4.1 setup/delete connections

> Select 'Connection Management' in the View-Selector.



Figure 56: View-Selector

Click the Collapse/Expand-Symbols of the desired entities of Talker and Listener. (for instance Talker 'TR P04' and Listener 'Slot 1').



Figure 57: Collapse/Expand-Symbols

> Click an empty Crosspoint to establish the connection.

(for instance connection between channel 'output stream 1' and 'stream input 8'). or

> Click a present Crosspoint to delete the connection.

(for instance connection between channel 'output stream 1' and 'stream input 4').

Stream Connections	stener	⊕	1		4		:	\oplus	+	\oplus	+	\oplus	+	Ð	
Refresh connection s	states	Franks Panel	Slot 1					TR P02	TR P03	TR P04	TR P05	TR P06	TR P07	TR P08	
Talker								\sim		2				~	
💮 Franks Panel															^
+ Slot 1															
💮 TR P02	\sim														
+ TR P03															
🔵 TR P04															
stream outpu	\sim				0										
+ TR P05															
🛞 TR P06															~
		<												>	

Figure 58: establish/delete connection



4.2 select a configuration

An entity can have multiple sets of configurations. The current configuration selection can be changed as follows:

> Select 'Entity properties' in the View-Selector.

File Views Option	is Help
Network Adapters:	LAN-onboard 🔹 🛃
Entity Properties X	N2

> Select the desired entity in the Entity-Table.

Entity Properties X					
Entity id	Name	Group	Acquire state	Online state	
0x197CFFFE001D49	Slot 1	Franks Rack		Available	
0x197CFFFE001FC7	TR P07	Testrack		Available	
0x197CFFFE001FC5	TR P05	Testrack		Available	8
0x197CFFFE001FB2	TR P02	Testrack		Available	
0x197CFFFE001FA8	TR P08	Testrack		Available	
0x197CFFFE001F96	TR P06	Testrack		Available	

Figure 60: Table of entities

> Select the main <u>Descriptor ENTITY</u>.



Select in the <u>Descriptor Values</u> '*Current configuration*' in the group '*Values*' the desired configuration in the drop down menu.

Descriptor Values		
Search		×
AccessId		
 Name Values 		
Association Id	0x0	
Configuration count	2	
Controller capabilities	00000001 ()	
Current configuration	1: AVB Configuration 1	Y
Entity capabilities	1: AVB Configuration 1 2: AVB Configuration 2 AEM SUPPORTED, CLASS A SUPPOR	RTED,CL

Figure 62: Descriptor Values area



4.3 setup clocking

> Select 'Entity properties' in the View-Selector.



Figure 63: View-Selector

Select the desired entity in the Entity-Table

Entity id	Name	Group	Acquire state	Online state	Identified at	Grandmaster id
0x197CFFFE001D49	Slot 1	Franks Rack		Available		0x496FFFE8389D9
0x197CFFFE001FC7	TR P07 13	Testrack		Available		0x496FFFE8389D9
0x197CFFFE001FC5	TR P05	Testrack		Available		0x496FFFE8389D9
0x197CFFFE001FB2	TR P02	Testrack		Available		0x496FFFE8389D9
0x197CFFFE001FA8	TR P08	Testrack		Available		0x496FFFE8389D9
0x197CFFFE001F96	TR P06	Testrack		Available		0x496FFFE8389D9

Figure 64: Table of entities

Select the <u>CLOCK_DOMAIN</u> Descriptor.



Figure 65: Descriptor area

Select in the <u>Descriptor Values</u> 'Clock source index' in the group 'Values' the desired clock input in the drop down menu.

Descriptor Values		
Search		×
 Id Object Name Values 		
Clock source index	1: " Type: INTERNAL, ENTITY.1	~
Clock sources	1: "Type: INTERNAL, ENTITY.1	N
Clock sources count	2: "Type: EXTERNAL, VALID.1 3: "Type: INPUT_STREAM, STREAM_INPUT.1	N
Clock sources offset	4: " Type: INPUT_STREAM, STREAM_INPUT.2	

Figure 66: Descriptor Values area

Clock Source Types					
INTERNAL	The clock is sourced within the entity such as from a crystal oscillator.				
EXTERNAL	The clock is sourced from an external connection on the entity (via a Jack).				
INPUT_STREAM	The clock is sourced from the media clock of an Input Stream.				

4.4 update the firmware

> Select 'Firmware Update' in the View-Selector.



> Click the button Load firmware file.

Entity Id	Name	Fw Version	Update state	Cancel	Update in %	Update progress	Online state
0x197CFFFE001FC7	TR P07	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001FC5	TR P05	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001FB2	TR P02	001.007-002.021	Inactive	Cancel		[Available
0x197CFFFE001FA8	TR P08	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001F96	TR P06	001.007-002.021	Inactive	Cancel		[Available
0x197CFFFE002074	TR P04	001.007-002.021	Inactive	Cancel		[Available
0x197CFFFE001F53	TR P03	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001D49	Slot 1	2.13	Inactive	Cancel		ſ	Available

Figure 68: load firmware file

> Navigate to the path of the firmware and select the *firmware.upg* file.

🔏 Open Firmware File				×
💮 💮 👻 🥙 OS (C:) 🕨 Tem	p ▶ firmware 👻	49	firmware durchsuchen	P
Organisieren 🔻 🛛 Neuer Ordne	er		# • 1	?
AVBX8_OP.upg				
Dateiname:	AVBX8_OP.upg	•	All files (*.*) Öffnen	• en

Figure 69: select firmware file



> Click on one or multiple (with the CTRL and/or SHIFT key) entities to select the entities to be updated.

The firm
menm
Hence,

The firmware file is hardware dependent.

nce, only entities of the same hardware can be updated simultaneously.

Entity Id	Name	Fw Version	Update state	Cancel	Update in %	Update progress	Online state
0x197CFFFE001D49	Slot 1	2.13	Inactive	Cancel			Available
0x197CFFFE001FC7	TR P07	001.007-002.021	Inactive	Cancel	1		Available
0x197CFFFE001FC5	TR P05	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001FB2	TR P02	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001FA8	TR P08	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001F96	TR P06	001.007-002.021	Inactive	Cancel	-		Available
0x197CFFFE002074	TR P04	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001F53	TR P03	001.007-002.021	Inactive	Cancel		<u> </u>	Available
0x197CFFFE0002FF	Franks Panel	003.000-003.003	Inactive	Cancel			Available

Figure 70: select entities to be updated

> Click the button *Start update*.

Entity Id	Name	Fw Version	Update state	Cancel	Update in %	Update progress	Online state
0x197CFFFE001D49	Slot 1	2.13	Inactive	Cancel			Available
0x197CFFFE001FC7	TR P07	001.007-002.021	Inactive	Cancel	· · · · · · · · · · · · · · · · · · ·	[Available
0x197CFFFE001FC5	TR P05	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001FB2	TR P02	001.007-002.021	Inactive	Cancel		<u> </u>	Available
0x197CFFFE001FA8	TR P08	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001F96	TR P06	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE002074	TR P04	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE001F53	TR P03	001.007-002.021	Inactive	Cancel			Available
0x197CFFFE0002FF	Franks Panel	003.000-003.003	Inactive	Cancel		(Available

Figure 71: start the update

> Watch the update progress.

Depending of the <u>option</u> setting *Reboot entity after Firmware Update per default*, the entities will reboot after completing the update procedure.

Entity Id	Name	Fw Version	Update state	Cancel	Update in %	Update progress	Online state	Load firmware file 'AVB108OP.upg'
0x197CFFFE001D49	Slot 1	2.13	Upload	Cancel	70,8%		Available	
0x197CFFFE001FC7	TR P07	001.007-002.021	Inactive	Cancel		[Available	Start update
0x197CFFFE001FC5	TR P05	001.007-002.021	Inactive	Cancel		[Available	Slot 1: StartMemoryOperation(UPLOAD) command has been sent;
0x197CFFFE001FB2	TR P02	001.007-002.021	Inactive	Cancel		<u></u>	Available	Siot 1: StartmennoryOperation(OPEOAD) response has been received, sending
0x197CFFFE001FA8	TR P08	001.007-002.021	Inactive	Cancel		<u></u>	Available	1
x197CFFFE001F96	TR P06	001.007-002.021	Inactive	Cancel		<u></u>	Available	1
0x197CFFFE002074	TR P04	001.007-002.021	Inactive	Cancel		ſ	Available	1
0x197CFFFE001F53	TR P03	001.007-002.021	Inactive	Cancel		<u></u>	Available	1
0x197CFFFE0002FF	Franks Panel	003.000-003.003	Inactive	Cancel		[Available	

Figure 72: update progress

Only entities contai are available for the	ning the three follow firmware update:	ing descriptor values,		
ENTITY	Entity capabilities	EFU_MODE		
		ADDRESS_ACCESS_SU	PPORTED	
CONFIGURATION	MEMORY_OBJECT	Memory object type	FIRMWARE_IMAGE	



Figure 73: required ENTITY descriptor values for firmware update

TR P07	Descriptor Values		
ENTITY 'TR P07'	Search		×
CONFIGURATION.1: 'configuration' AUDIO UNIT.1: 'audio unit'	⊿ Id		~
STREAM_INPUT.1: 'stream input'	Descriptor index	0	
STREAM_OUTPUT.1: 'stream output' AVB_INTERFACE.1: 'avb_interface'	Descriptor type	MEMORY_OBJECT	
JACK_INPUT.1: 'jack input'	Object Name Object		
JACK_OUTPUT.1: 'jack output'	Descriptor name		=
MEMORY_OBJECT.2: 'debug log'	Localized description	firmware	
□ LOCALE.1	 Values 		
STRINGS.1 STRINGS.2	Length	0x800000	
STRINGS.3	Maximum length	0x800000	-
STRINGS 5	Memory object type	FIRMWARE, IMAGE	
Shandsis	Start address	0x400	~
	Memory object type The type of the memory object	ect.	

Figure 74: required MEMORY_OBJECT descriptor values for firmware update



5 Appendix

5.1 Glossary

АСМР	AVDECC Connection Management Protocol
ADPDU	AVDECC Discovery Protocol Data Unit
AEM	AVDECC Entity Model
AES/EBU	Standard for carrying a digital stereo audio signal (2 mono channels) between devices.
AVB	Audio Video Bridging
AVDECC	Standard for A udio/ V ideo D iscovery, E numeration, C onnection Management and C ontrol
GUID	Globally Unique IDentifier is a unique reference number used as an identifier
gPTP	generalized Precision Time Protocol
MSRP	Multiple Stream Reservation Protocol
PC	Personal Computer
Sample Rate	Number of digital amplitude values per second taken from a signal (48/96kHz)

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5.2 Service

If you have any further questions, we offer comprehensive customer service options for this product including:

- Telephone Service
- Email Service
- Skype Service
- Fax Service
- Configuration Support
- Trainings
- Repair

Your primary point of contact for any service issues is your local dealer. In addition, Riedel Customer Service in Wuppertal, Germany is also available to assist you.

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Skype: riedel.communications.service

Or use the contact form on our website: <u>www.riedel.net > Company > Riedel Communications > Contact > Wuppertal (Headquarters)</u>

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The address for repairs sent directly to Riedel Communications GmbH is:

Riedel Communications GmbH & Co. KG - Repairs -Uellendahler Str. 353 D-42109 Wuppertal Germany

Please add a completed repair form to all your repairs. The form can be found at the Riedel website: www.riedel.net > Company > Services > Support > Contact

Notes



