Setup of the WLAN at DHBW-Karlsruhe

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1. General information about DHBW-KA and eduroam

The WLAN with SSID **DHBW-KA** is encrypted with WPA2 Enterprise and is only provided at DHBW Karlsruhe. Users are authenticated in the teaching domain dh-karlsruhe.de. An authentication with the administration account in the domain dhbw-karlsruhe.de or dhbw-karlsruhe.aa does not work.

The WLAN with the SSID "DHBW KA" is encrypted and should be used at the Duale Hochschule Baden-Württemberg Karlsruhe whenever possible.

SSID **eduroam** is available at many educational institutions worldwide and also in parts of Karlsruhe. The setup of this WLAN is identical to DHBW-KA. The user name must be specified in the form "user@dh-karlsruhe.de", whereby upper and lower case is important for the user. Of course eduroam is also encrypted with WPA2 Enterprise. A list of participating locations is available at <u>https://map.eduroam.de</u>.

At <u>https://cat.eduroam.org</u> you can download an installation file, which makes the secure setup of eduroam much easier for you. It is recommended to use this option. To do this, click on the button "Download your eduroam installation program" on the website and search for DHBW Karlsruhe. Usually you will be offered the appropriate installation program for your operating system, otherwise you can select it via the link "All Platforms".

2. Prerequisites

Please make sure that your Wi-Fi connection assigns the IP address automatically via DHCP.

Internet Protocol Version 4 (TCP/IPv4) Properties									
General Alternate Configuration									
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.									
Obtain an IP address automatically									
Use the following IP address									
IP address:									
Subnet mask:									
Default gateway:									
Obtain DNS server address a	automatically								
Use the following DNS serve	r addresses:								
Preferred DNS server:									
Alternate DNS server:									
Validate settings upon exit	Advanced								
	OK Cancel								

3. Setup on Windows 10

To connect to the network please follow these instructions.

Click on the network icon in the system tray:



With Windows 11 you have now to click the arrow next the WLAN Symbol:



Select the DHBW-KA-network (or eduroam)



and click on "connect":

₽ <i>(</i> (,	DHBW-KA5
17.	DHBW-KA Secured
	Connect automatically
	Connect
(h.	KA-WLAN
₽//。	eduroam
877.	KA-sWLAN

Enter your authentication information (name.firstname@dh-karslruhe.de) in the following screen and confirm it by clicking "OK".



Now verify the certificate details



Please ensure, the certificate thumbprint is one oft he following:



The certificates are changed regularly, please use the latest version of this instruction. After clicking on "Connect" you should be connected to the WLAN.



4. Setup on Windows 8.1

If you are still using Windows 8, please upgrade to Windows 8.1 or later. Windows 8 is out of date.

Connect to the wireless network as follows:

Move your mouse to the bottom right corner of your screen and then move the mouse pointer to Settings. Then click on the left icon in the top row, where stock is available. A list of available wireless networks will be displayed.

	Settings Desktop	
	Control Panel	
S earch	Personalization	Networks
~ .	PC info	View Connection Settings
	Help	view connection settings
Share		Airplane mode
		Off
Start		
		WiFi
Devices	ਸ਼ ।¶≫ ਂ੦਼ੇਂ	On
Ö	dh- 67 Brightness karlsruhe.de	.III DHBW-KA
Settings		Connected
	Notifications Power Keyboard	All DHBW-KA5
	Change PC settings	eduroam

Click DHBW KA (eduroam works the same way), then click Connect.



In the following screen, enter your authentication information. After clicking "OK" you should be connected to the Wi-Fi.



Display the certificate details



Valid Fingerprints are as follows:

81	06	07	В6	26	C4	ЕC	AE	63	32	C8	CC	FЗ	DA	F4	90	14	27	CA	81
BЗ	54	50	E4	63	CD	7D	75	FΕ	1F	CE	0B	AO	1F	D2	0E	Е9	CA	02	AF
6C	37	21	F8	F5	FA	9F	2A	7A	28	5A	F1	67	76	59	ЕC	01	CF	44	FA
7E	29	9C	ΕO	21	65	57	ΒA	21	74	В1	82	ΕD	E4	CD	F7	6F	04	8B	1A

With this check, you prevent an unauthorized third-party server from intercepting your authentication data and subsequently misusing it. If there is one of these fingerprints, so you can connect to "connect" to the WLAN. During the initial setup, it might be possible that you will be requested to confirm the certificate "T-Telesec Global Root Class 2".



5. Windows 7 and older Versions

Windows 7 and older versions of Microsoft Windows like Windows Vista and Windows XP are obsolete and no longer supported. It is not allowed to connect devices with this old versions of Windows with the Network of the DHBW Karlsruhe.

6. Setup on Linux

Unfortunately, not all Linux variants can be dealt with here. With the following information, you can use the DHBW-KA Wi-Fi.

SSID: DHBW-KA Encryption: WPA / TKIP or WPA2 / AES Authentication: PEAP with MSCHAP v2 Authentication authority of the certificate: T-Telesec Global Root Class 2 Authentication data: your user from the domain dh-karlsruhe IP configuration automatically via DHCP

The example looks like this:

Open Network Connections and add a new connection:

Network C	>	
Name	Last Used 🔻	Add
- Ethernet		Edit
Wired connection 1 • Wi-Fi	1 month ago	Delete
eduroam	1 minute ago	
DHBW-KA	1 month ago	
Automatisch KA-WLAN	1 month ago	
		Close

Choose type Wi-Fi

		×								
2	Choose a Connection Type									
	Select the type of connection you wish to create.									
	If you are creating a VPN, and the VPN connection you wish to create does not appear in the list, you may not have the correct VPN plugin installed.									
	Wi-Fi									
	Cancel Create									

Name: eduroam, SSID: eduroam, Mode: Client, Device: your Wi-Fi Connector

		×							
Connection name: eduroam									
General Wi-Fi Wi-Fi Sec	curity IPv4 Settings IPv	v6 Settings							
SSID:	eduroam								
Mode:	Client		•						
BSSID:			•						
Device:	wlp3s0 (1	•						
Cloned MAC address:									
MTU:	automatic	-	+ bytes						
		Cancel	Save						

In the Wi-Fi Security tab, fill in the fields as shown below:

Editing eduroam							
Connection name: eduroam							
General Wi-Fi Wi-Fi Security IPv	4 Settings IPv6 Settings						
Security:	WPA & WPA2 Enterprise	•					
Authentication:	Protected EAP (PEAP)	•					
Anonymous identity:							
CA certificate:	T-TeleSec_GlobalRoot_Class_2.pem						
	No CA certificate is required						
PEAP version:	Automatic	•					
Inner authentication:	MSCHAPv2	•					
Username:	nachname.vorname@dh-karlsruhe.de						
Password:	deinpasswort						
	Show password						
	Cancel Save	•					

Instead of "name.firstname@dh-karlsruhe.de" enter your own account data.

The certificates are often located at /etc/ssl/certs

				Cho	ose a C	erti	ificate Author	ity certificate			×
ව Recent		٩	etc	ssl	certs	•					
 nome Desktop Bilder Dokumente Downloads Musik Videos Other Locatio 		me SZA Taiv Telia tha tha tha tha Tru T-Te TUE TUE TUE TUE	FIR_RC van_Gf aSoner wte_Pr wte_Pr stis_FP leSec_ leSec_ BITAK_I BITAK_U RTRUS	CA.pe a_Root imary_ imary_ imary_ S_Root Globall Globall Globall Camu_S JEKAE_ ST_Cert	xz.pem m CA_v1.j Root_CA Root_CA _CA.pem Root_Cla SM_SSL_l Kök_Sert ificate_Si tronik_Se	per .per G _ss_2 ss_3 Kok_ tifika ervid	n m 52.pem 53.pem 2.pem _SertifikasiSur a_Hizmet_Sağlay ices_Provider_Roi īka_Hizmet_Sağla	um_1.pem ricisiSürüm_3.pem ot_2007.pem ayıcısi_H5.pem	•	Size 1,3 kB 1,9 kB 1,9 kB 1,5 kB 940 bytes 1,5 kB 1,2 kB 1,4 kB 1,4 kB 1,6 kB 1,8 kB 1,5 kB 1,5 kB	Modified 27 Sep 2017 27 Sep 2017
	DER or PEM certificates (*.der, *.pem, *.crt, *.c									*.crt, *.cer) •	
										Cancel	Open

Set the method IPv4 Settings Automatic (DHCP) at the IPv4 Settings.

Editing eduroam										
Connectior	Connection name: eduroam									
General V	General Wi-Fi Wi-Fi Security IPv4 Settings IPv6 Settings									
Method: Automatic (DHCP)										
Addresse	25									
Addres	S	Netmask	Gateway	Add						
				Delete						
Addition	nal DNS se	ervers:								
Addition	nal search	domains:								
DHCP cl	lient ID:									
🗆 Requ	Require IPv4 addressing for this connection to complete									
				Routes						
			Ca	ancel Save						

Save now and Connect.

7. Setup on Android

9.1 Android up to version 6

First install the root certificate of T-Telesec GlobalRoot Class 2 under https://www.pki.dfn.de/fileadmin/PKI/zertifikate/T-TeleSec_GlobalRoot_Class_2.crt or scan this QR code: (Attention, with some devices, e.g. from the manufacturer Samsung, some screen unlocking methods, such as patterns or fingerprints, will then no longer work, as the manufacturer of the smartphone classifies them as unsafe.)





There, tap Wireless & networks

		î .4	13:30
Setti	ngs		
CONNEC	TION MY DEVICE ACCOUN	TS	MORE
Netwo	ork connections		
?	Wi-Fi		
*	Bluetooth		-
Lal	Data usage		
((<u>p</u>)	More networks		
Conne	ect and share		
G	NFC Allow data exchange when d touches another device.	evice	-•
	S Beam Send files via NFC and Wi-Fi I	Direct.	-

Swipe to activate Wi-Fi and then go to Wi-Fi settings.



Now tap on the network you want (eduroam or DHBW-KA) and then the profile features as shown.



Instead of "name.firstname@dh-karlsruhe.de" you have to use your own user name in the domain "dh-karlsruhe" of course. After that tap Connect and you should be connected to the desired network.



9.2 Android from version 7.0

Since Version 7 Android allows the usage of the installed system certificates. You don't need to install the certificate separately. Proceed as follows:

Open the settings for Network & internet

2:41		Đ
←	Network & internet	୦ 🕐
•	Wi-Fi Not connected	
	Mobile network	
0	Data usage 1.33 GB used on Wi-Fi	
\bigcirc	Hotspot & tethering Off	
	Airplane mode	
~	Advanced VPN, Private DNS	

Wi-Fi



Wi-Fi turns back on automatically

Make sure that the WLAN is switched on. Tap DHBW-KA or eduroam and fill in the form as shown in the next picture.



Instead of **name.surname** you have to enter your own username. Now tap connect.



If you do not have the setting option "Use system certificates" on your device, please proceed as described under "Android up to version 6". For eduroam you can use the app eduroamCAT from the Google Play Store.

8. Mac OS

To install Wi-Fi on a MacBook click on System preferences



then on the Network-icon:



Turn on the Wi-Fi.

	Network	Q Search
Locati	on: Automatic	•
• Ethernet	Status: Off	Turn Wi-Fi On
• FireWire Not Connected		
• Wi-Fi	Network Name: Wi-Fi: Off	•
Bluetooth PAN Not Connected Not Connected	Ask to joi Known netw no known ne asked befor	in new networks vorks will be joined automatically. If etworks are available, you will be e joining a new network.
+ - *	🗹 Show Wi-Fi status in menu bar	Advanced ?
	Assist me	e Revert Apply

Now you have to select your network (DHBW-KA or eduroam):

$\bullet \bullet \circ \checkmark > \blacksquare$	Network	Q Search
Loc	ation: Automatic	0
Ethernet Not Connected FireWire Not Connected	Status: On Wi-Fi is turned on bunetwork.	Turn Wi-Fi Off ut is not connected to a
 Wi-Fi on Bluetooth PAN Not Connected ThundIt Bridge Not Connected 	Network Name ✓ No network sele ChromcaetWL DHBW-KA DHBW-KA5 eduroam KA-sWLAN KA-WLAN Join Other Netw	ork
+ - *	Show Wi-Fi status in menu bar	Advanced ?



Enter your Authentication Information as follow:

Proceed with clicking the button "Join" for connecting with the Wi-Fi.



It's recommended to turn on your firewall and block incoming connections if you don't want to share data with other Wi-Fi users.

••• • • •		Security 8	& Privacy	C	Search
	General	FileVault	Firewall	Privacy	
Firewall: Off				Turn On Fire	ewall
This computer's firewa computer are allowed.	all is current	ly turned of	f. All incomi	ng connections to this	
				Firewall Opti	ons

In the Firewall Options check the Box "Block all incoming connections" and confirm this by clicking the "OK" button.

Bock all in Blocks all in DHCP, Bonj	Sec ncoming connections ncoming connections except our, and IPSec.	urity & Privacy	aternet service	Q Search
	The firewall will block all sharing, Messages Bonjou allow sharing services, des checkbox.	naring services, such as file r, and iTunes music sharing elect the "Block all incomin	e sharing, scre g. If you want t ng connection	en o s"
+ -	ally allow signed softwa	re to receive incoming o	connections	
Allows soft network.	ware signed by a valid certifi	cate authority to provide se	ervices access	ed from the
✓ Enable ste Don't respo applications	eaith mode ind to or acknowledge attem s using ICMP, such as Ping.	pts to access this compute	er from the net	twork by test
?		(Cancel	ОК
Click the lock to	prevent further changes.		(Advanced ?

9. iOS

To connect your iPad or iPhone to the Wi-Fi go to the system preferences.



and turn on the Wi-Fi.



Now select the network (DHBW-KA or eduroam)

03:31	31% 💷
Wi-Fi	
Wi-Fi	
CHOOSE A NETWORK	
ChromcastWI	₽ 중 (j)
DHBW-KA	₽ 奈 (j)
DHBW-KA5	₽ 중 (i)
eduroam	 ₽ ≎ (ì)
	03:31 Wi-Fi Wi-Fi CHOOSE A NETWORK ChromcastWI DHBW-KA DHBW-KA5 eduroam

and enter your authentication Information as follows:

iPad		02:53		∦ 28% 💶
S	ettings		Wi-Fi	
Airplane M	Node	Wi-Fi		
ᅙ Wi-Fi	Not Connected	CHOOSE A NETWORK		
Bluetoc	Enter	the password for "DHBW-KA"		? (i)
	Cancel	Enter Password	Join	• 🗢 (j)
Notifica				i r (j)
Control	Username name.f	irstname@dh-karlsruhe.de)	
C Do Not	Password •••••	•••		
_				
Genera				? (i)
A Display				
🛞 Wallpar				
Sounds				
Passco				elect a
Privacy				
iCloud				
Q W	E R	T Y U	I 0	P
AS	D F	G H J	KL	return
◆ Z	x c v		vi ! ?	
.?123			.?1	23

After clicking on "Join" you have to confirm the certification:

iPad	03:36	31% 🔳
Cancel	Certificate	Trust
	aragorn.dh-karlsruhe.de Issued by DFN-Verein Global Issuing CA	
Expires	Not Trusted 21/07/20 06:41:59	
More Detai	ls	>

After that you are connected to the Wi-Fi.

iPad ᅙ		22:23		29% 🔳
Settings			Wi-Fi	
≻ Airplane Mode	\bigcirc	Wi-Fi		
ᅙ Wi-Fi	DHBW-KA	OHBW-KA		₽ 奈 (j)