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Prerequisites for participating in Volkswagen Skype-Meetings via Skype for Business Web App

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1 Introduction

This set of instructions is directed at IT departments of customers and partners of Volkswagen.

The basis for exchange via Skype for Business is a Skype online meeting, to which the external partners can be invited by e-mail.

These instructions show customers / partners how to participate in online meetings with Volkswagen by using the Microsoft Skype for Business Web App.

After adjusting the appropriate settings, users should be able, via Microsoft Skype for Business Web App, to participate in Volkswagen Skype Meetings. Invitations to these meetings are issued, via e-mail, by the Volkswagen meeting organizers. External participants are required to install a Browser-Plug-In (this installation does not require Administrator permission).

If the described technical settings will not be implemented by your IT department, that may cause issues with poor voice quality or even loss of connectivity for your Skype for Business participants.

If you have technical problems by joining our Skype for Business conferences, we strongly recommend to initiate a Skype for Business conference test call. That is necessary, to isolate the error.

If this is the case, please inform your Volkswagen contact person from the department, with whom you plan to communicate via Skype. This contact person can set up a service request in our Enterprise Helpdesk to initiate that Skype test conference. Therefore we additionally need a contact from your IT / Network department.

Alternatively, please contact us by email: realtime-communication@volkswagen.de

Thank you for your support

Your Volkswagen Skype for Business Team

2 Basic Settings

When participating in a Volkswagen Skype-Meeting via Microsoft Skype for Business Web App, communication is between the Volkswagen Skype for Business EDGE Servers and the participant's Web browser.

2.1 Skype for Business Edge Server

Communication is via Skype for Business AV EDGE Server for Data, Audio and Video traffic as well as for content sharing. This uses port 443.

Accessibility of the following systems must be ensured:

Host	IP address	Port
join.vwgroup.com	194.114.33.208	443/tcp
rtc01web.vwgroup.com	194.114.33.204	443/tcp
rtc02web.vwgroup.com	194.114.33.205	443/tcp
rtc03web.vwgroup.com	194.114.33.220	443/tcp
rtc04web.vwgroup.com	194.114.33.221	443/tcp
rtc01owas.vwgroup.com	194.114.33.206	443/tcp
rtc02owas.vwgroup.com	194.114.33.207	443/tcp
rtc03owas.vwgroup.com	194.114.33.222	443/tcp
rtc04owas.vwgroup.com	194.114.33.223	443/tcp
rtc01av.vwgroup.com	194.114.126.163 194.114.126.165	443/tcp 50.000 -59.999/tcp 50.000 -59.999/udp 3478/udp
rtc02av.vwgroup.com	194.114.126.164 194.114.126.166	443/tcp 50.000 -59.999/tcp 50.000 -59.999/udp 3478/udp
rtc03av.vwgroup.com	194.114.126.175 194.114.126.177	443/tcp 50.000 -59.999/tcp 50.000 -59.999/udp 3478/udp
rtc04av.vwgroup.com	194.114.126.176 194.114.126.178	443/tcp 50.000 -59.999/tcp 50.000 -59.999/udp 3478/udp
rtc01we.vwgroup.com	194.114.126.159 194.114.126.161	443/tcp
rtc02we.vwgroup.com	194.114.126.160 194.114.126.162	443/tcp
rtc03we.vwgroup.com	194.114.126.171 194.114.126.173	443/tcp
rtc04we.vwgroup.com	194.114.126.172 194.114.126.174	443/tcp

When using proxy servers, it is important to ensure that the URLs und IP-Addresses used by Skype for Business are accessible without further User Authentication.

2.2 Browser settings for Ports used for Audio/Video and Sharing

Following ports / protocols must be open in the external firewalls and proxy servers:

- Port 80, 443 – Protocol STUN / TCP (output) for Audio, Video und Sharing
- Port 80, 443 – Protocol PSQM / TLS (output) for unhindered data access

Browser requirements

The following Browsers are supported: Microsoft Edge, Microsoft Internet Explorer (Version 9 or higher), Firefox (Version 12 or higher), Safari (Version 5 or higher) und Chrome (Version 18 or higher).

Operating system	Edge	32- and 64-bit Internet Explorer 11	32-bit Internet Explorer 10	64-bit Internet Explorer 10	32-bit Internet Explorer 9	64-bit Internet Explorer 9	32-bit Version of Firefox 12.X	64-bit Versions of Safari 5.X, 6.X, 7.X	32-bit Version of Chrome 18.X
Windows 10	Yes	Yes	N/A	N/A	N/A	N/A	Yes	N/A	Yes
Windows 8.1 ¹	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	Yes
Windows 8 (Intel based) ¹	N/A	N/A	Yes	Yes	N/A	N/A	Yes	N/A	Yes
Windows 7 with SP1 ²	N/A	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Windows Server 2008 R2 with SP1 ²	N/A	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Windows Server 2008 with SP2 ³	N/A	Yes	Yes	No	Yes	No	Yes	No	Yes
Mac OS X 10.8 and later (Intel-based) ²	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes

The following link gives detailed information on supported Browsers and Operating Systems:

<https://technet.microsoft.com/en-us/library/gg425820.aspx>

Should Video communication also be considered, there may well be specific Hardware requirements. Further information on this topic can be found here:

<https://technet.microsoft.com/en-us/library/jj688132.aspx>

Here is an overview of all Skype for Business Workloads:

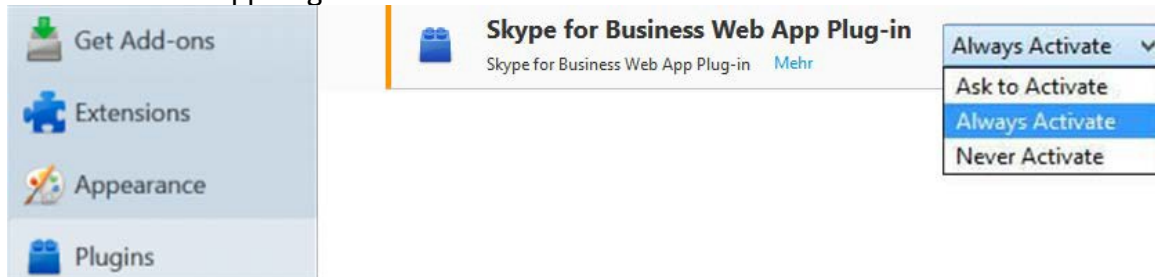
<https://www.microsoft.com/en-us/download/details.aspx?id=39968>

Skype for Business Web App Plug-In

- Microsoft Skype for Business Web App Plug-In is required in order to access Content and A/V.
- The installation of Skype for Business Web App Plug-In does not require Administrator permission, but users should have the capability to be able to install the Microsoft Skype for Business Web App Plug-In.

For Mozilla Firefox users:

- In the default-setup the Plug-In has to be activated each time it is used
- Recommendation: Always activate the Skype for Business-Plug-in after the first installation
 - Open the Add-ons settings by entering about: add ons in Mozilla Firefox
 - Select „Plugins“ and choose „Always Activate“ for the „Skype for Business Web AppPlug-in“



3 Recommendations for trouble shooting

Joining via Skype Meeting App – Requirements.

When not federated or not being able to use Skype Desktop or Mobile App even while being federated then Skype Meeting App needs to be used. In case of any issue while joining with Skype Meeting App, please consult your IT department and review the following section accordingly.

Note: All these things need to be verified on partner network – the responsibility is up to Network IT Stuff of the joining party.

3.1 Best Practice

Make sure, your internal clients can connect directly to the following Skype Media endpoints without leveraging proxy via 3478/udp and 443/tcp. As requirement for that, your clients also need to be able to resolve public DNS (e.g. rtc01av.vwgroup.com) for the below endpoints.

rtc01av.vwgroup.com	rtc02av.vwgroup.com
194.114.126.165	194.114.126.166
194.114.126.163	194.114.126.164
rtc03av.vwgroup.com	rtc04av.vwgroup.com
194.114.126.175	194.114.126.176
194.114.126.177	194.114.126.178

3.2 Alternatively using Proxy

If direct connection is not possible due to your corporate network setup and so using proxy is required, then you have to make sure your internal clients can successfully connect to following endpoints by leveraging your proxy.

- <https://join.vwgroup.com> -> Join Launcher
- <https://rtc01web.vwgroup.com> -> Signaling
- <https://rtc02web.vwgroup.com> -> Signaling
- <https://rtc03web.vwgroup.com> -> Signaling
- <https://rtc04web.vwgroup.com> -> Signaling

For PPT Sharing your clients also need to connect to

- <https://rtc01owas.vwgroup.com> -> Signaling
- <https://rtc02owas.vwgroup.com> -> Signaling
- <https://rtc03owas.vwgroup.com> -> Signaling
- <https://rtc04owas.vwgroup.com> -> Signaling

The same applies for the media endpoints as listed below.

Note: In case you are using proxy with authentication, make sure you have authentication disabled (Auth bypass) for the following endpoints. This is a must-have for proper media establishment and successful joining to VWGROUP Skype Conferences.

- <https://rtc01av.vwgroup.com> -> Media (Audio/Video/AppSharing)
- <https://rtc02av.vwgroup.com> -> Media (Audio/Video/AppSharing)
- <https://rtc03av.vwgroup.com> -> Media (Audio/Video/AppSharing)
- <https://rtc04av.vwgroup.com> -> Media (Audio/Video/AppSharing)

3.3 Pseudo TLS

In case media setup (Conference Joining) is still not working after following the above requirements, then make sure Pseudo TLS is not blocked by your proxy/firewall.

[Appendix] Pseudo TLS

When TCP is used as a transport, the TURN server is deployed to listen on port 443, the Secure Sockets Layer (SSL)/TLS port. If a protocol client is attempting to communicate with a TURN server deployed in this fashion, it sends a pseudo-TLS message to the TURN server to begin the session. The pseudo-TLS messages are useful if a firewall or Web proxy, doing packet inspection for TLS messages, is sitting between the protocol client and TURN server. The TURN server MUST support pseudo-TLS.

https://docs.microsoft.com/en-us/openspecs/office_protocols/ms-turn/ae97f19f-88ea-44a7-bb2e-2b23cb645da5

[Appendix] Pseudo TLS not affected by TLS 1.0 and 1.1 disablement:

<https://techcommunity.microsoft.com/t5/Skype-for-Business-Blog/Disabling-TLS-1-0-1-1-in-Skype-for-Business-Server-2015-Part-1/ba-p/621485>

Also note we have not made any changes to our Pseudo-TLS implementation. Pseudo-TLS is not impacted by disabling TLS 1.0/1.1 on Skype for Business Servers and an in-depth discussion of MS-TURN Pseudo-TLS is beyond the scope of this blog series. However, all previous guidance still applies - some HTTP proxies or firewalls may interfere with the MS-TURN protocol and prevent Lync/Skype for Business clients and servers from functioning properly. In releasing support for disabling TLS 1.0/1.1 in your Skype for Business Server On-Premises environments we are

not suggesting you begin actively monitoring and blocking MS-TURN (Lync/Skype) Pseudo-TLS on HTTP proxies and firewalls, in fact this practice remains unsupported.