

## Tips for Bidirectional Audio

MobiKEY 5.2

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### Definitions:

"**Asset**" means a computer, tablet, notebook, laptop or similar machine.

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"**Host Asset**" or "**Host**" shall mean the Asset that has the MobiNET Agent software installed on it. The Host may be a single host computer system, a series of host computer systems, a virtual computer or machine, a network, a server based system or any other host system on which the MobiNET Agent software is running.

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"**Remote Asset**" shall mean the Asset that is accessing a Host using the MobiKEY technology.

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## Tips for Bidirectional Audio

### MobiKEY 5.2

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#### Introduction

With MobiKEY 5.2 technology, bidirectional audio is now supported. This means that during a MobiKEY data session you can hear incoming audio from the Host asset (outputting through your Remote asset's speakers), and you can send outgoing audio from your Remote asset to your Host asset (using your Remote asset's microphone).

In order to enable incoming audio sent from the Host asset to output through your Remote asset's speakers, connect to your Host using the MobiKEY. Then once the session has been established, you should click on the "Capture speakers" button on the MobiKEY session taskbar.



Figure 1. "Capture speakers" button

To enable outgoing audio sent from the Remote asset's microphone to reach the Host asset connect to your Host using the MobiKEY. Once the session has been established you should click on the "Capture microphone" button on the MobiKEY session taskbar.



Figure 2. "Capture microphone" button

During your MobiKEY data session, you may choose to only enable incoming audio (with the "Capture speakers" button) to only enable outgoing audio (with the "Capture microphone" button) or to enable both at the same time (for full bidirectional audio).

Please note that bidirectional audio is not supported with Host Assets running Windows Server 2008R2 64bit or Windows Server 2012R2 64bit. Additionally, please note that bidirectional audio is supported with MC3 and Fusion3 with Windows, Mac, and Linux Remote assets, but it is not supported with Bootable MC3 or Bootable Fusion3.

## Tips for Bidirectional Audio

### MobiKEY 5.2

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#### Getting Started Checklist

- Ensure that the Host asset has a speaker device attached. This can be external speakers or a headset, or on-board speakers embedded directly on the Host. Incoming audio capture (with the “Capture speakers” button) will not work if the Host asset does not have its own physical speaker device.
- To hear incoming audio during a MobiKEY data session, ensure that you have speakers on the Remote asset. Please also ensure that the speaker volume level on your Remote asset has been adjusted appropriately in order to hear incoming audio.
- To send outgoing audio during a MobiKEY data session, ensure that you have a microphone attached to your Remote asset. Please also ensure that the microphone volume level on your Remote asset has been adjusted appropriately in order to send outgoing audio. *Please note: you do not need a microphone attached to your Host asset in order to send outgoing audio from the Remote asset’s microphone to the Host asset.*
- Ensure that your network connection meets the minimum bandwidth requirements for bidirectional audio. For the “High” quality your available bandwidth should be 1.57 Mbps or higher. See the “**General Bandwidth Requirements**” document for more details.

## Tips for Bidirectional Audio

MobiKEY 5.2

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### Enabling Bidirectional Audio in a Data Session

- 1) First, connect to the Host asset using the MobiKEY, and then observe the MobiKEY session taskbar. The MobiKEY session taskbar automatically hides after a few seconds. If it is not visible, move your mouse to the top middle of the screen to make it appear again.



Figure 3. MobiKEY session taskbar

- 2) From the MobiKEY session taskbar click on the “Capture speakers” button.



Figure 4. “Capture speakers” button

- 3) Once you click on the “Capture speakers” button a dialog box will appear with a checkbox.



Figure 5. “Capture speakers” checkbox

## Tips for Bidirectional Audio

### MobiKEY 5.2

---

- 4) Place a checkmark inside of the checkbox next to “Capture speakers”. afterwards, you will see four different selectable sound qualities: Minimal, Low, Medium, and High. *Please note: On Windows guests, the selectable sound qualities will appear before having clicked the checkbox.*

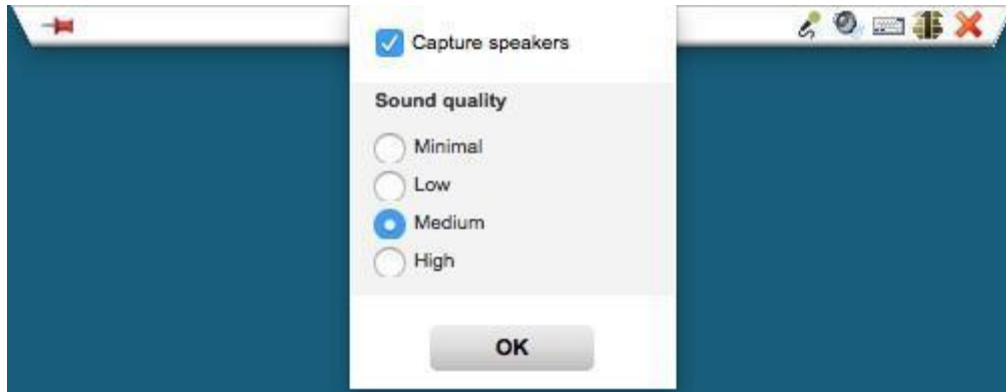


Figure 6. “Capture speakers” selectable sound qualities

- 5) If you hover over each selectable sound quality with your mouse, you will see a tooltip pop-up message that describes the sound fidelity that the corresponding choice will provide you inside of the data session. For example, as the image below shows, the medium sound quality provides Stereo audio, with 16-bit samples, and a 16kHz sampling rate.

Minimal provides the lowest fidelity/quality and requires the lowest bandwidth, while High provides the best fidelity/quality and requires the highest bandwidth. For more information on fidelity/quality and bandwidth requirements for all choices please go to “**General Bandwidth Requirements**”.

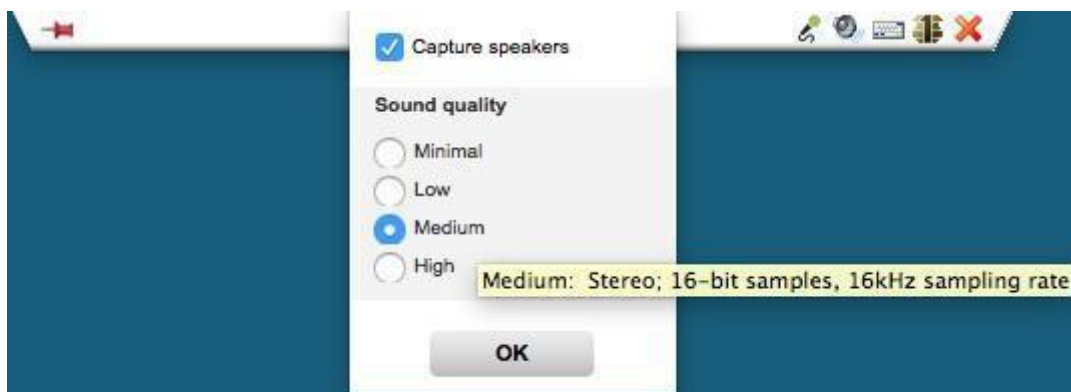


Figure 7. “Capture speakers” tooltip pop-up for Medium sound quality

## Tips for Bidirectional Audio

### MobiKEY 5.2

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- 6) On the MobiKEY session taskbar you will also see the “Capture microphone” button. Please click on that.



Figure 8. “Capture microphone” button

- 7) Once you click on the “Capture microphone” button, a dialog box will appear with a checkbox.

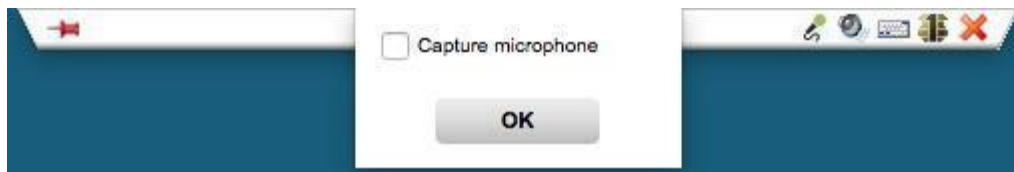


Figure 9. “Capture microphone” checkbox

- 8) Place a checkmark inside of the checkbox next to “Capture microphone”. Just like with the “Capture speakers” dialog box, you will then see four different selectable sound qualities: Minimal, Low, Medium, and High. *Please note: On Windows guests, the selectable sound qualities will appear before having clicked the checkbox.*

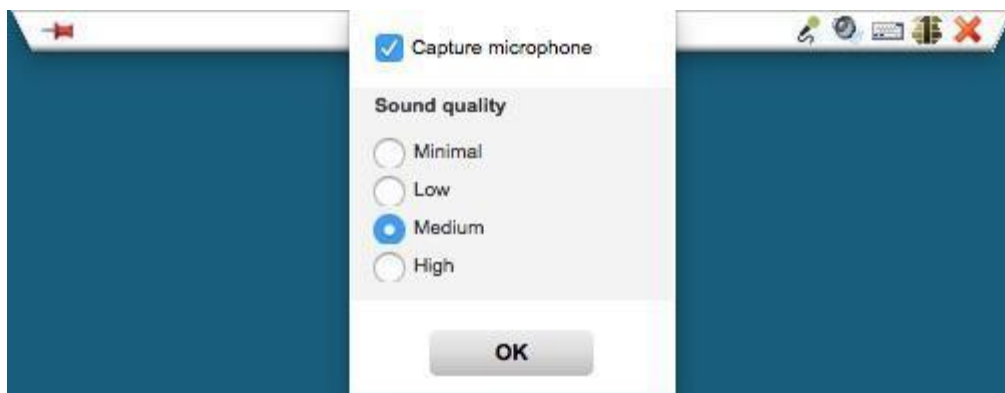


Figure 10. “Capture microphone” selectable sound qualities

## Tips for Bidirectional Audio

MobiKEY 5.2

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- 9) Just like with the “Capture speakers” dialog box, if you hover over the selectable sound qualities with your mouse, you will see descriptions for the fidelity/quality for that selection. For more information on fidelity/quality and bandwidth requirements for all choices, please go to **“General Bandwidth Requirements”**.

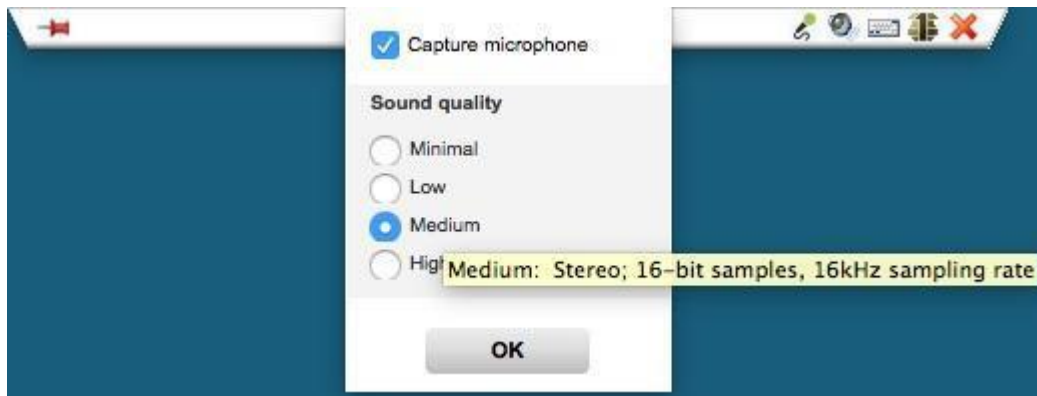


Figure 11. “Capture microphone” tooltip pop-up for Medium sound quality

## Tips for Bidirectional Audio

MobiKEY 5.2

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### General Bandwidth Requirements:

Incoming and outgoing audio both have the same selectable sound qualities. For incoming audio (under the “Capture speakers” dialog box) you will see these selectable sound qualities: Minimal, Low, Medium and High. For outgoing audio (under the “Capture microphone” dialog box) the same four selectable sound qualities are available.

Below you will see a description of the fidelity/quality of each selectable sound quality (including information like sample size and sampling rate).

- **Minimal sound quality:** Mono; 8-bit samples; 8kHz sampling rate
- **Low sound quality:** Mono; 16-bit samples; 8kHz sampling rate
- **Medium sound quality:** Stereo; 16-bit samples; 16kHz sampling rate
- **High sound quality:** Stereo; 16-bit samples; 44.1kHz sampling rate ("CD quality")

Below you will see the minimum bandwidth requirements for each sound quality, in kiloBytes per second and Megabits per second.

- **Minimal sound quality:** 8.9 kiloBytes per second or 0.07 Megabits per second
- **Low sound quality:** 17.8 kiloBytes per second or 0.14 Megabits per second
- **Medium sound quality:** 71.1 kiloBytes per second or 0.57 Megabits per second
- **High sound quality:** 196 kiloBytes per second or 1.57 Megabits per second



## Tips for Bidirectional Audio

MobiKEY 5.2

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### Troubleshooting Tips:

- 1) **General Tip:** *Ensure that “Mic 1 (MobiNET Audio)” is not chosen as the default **audio playback** device in your Host asset.*

The “Mic 1 (MobiNET Audio)” audio device is installed alongside the MobiNET gent software on the Host asset. The “Mic 1 (MobiNET Audio)” device is meant only to be used for microphones and should not be used as an audio playback device. If you encounter this issue, please see below for tips to remove “Mic 1 (MobiNET Audio)” as the default audio playback device.

- a) Right click on the sound icon on your Host asset’s system tray.



Figure 12. Host asset’s sound icon on system tray

- b) In the right-click dialog box choose “Playback devices”. In the resulting window, make sure to select the “Playback” tab.



Figure 13. Sound icon’s right-click dialog box

## **Tips for Bidirectional Audio**

### MobiKEY 5.2

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- c) The Sound Properties window will appear showing the “Playback” tab. It may show that “Mic 1 (MobiNET Audio)” is the default playback device with a green checkmark.
  
- d) Highlight your Host asset’s actual speakers and then click on “Set Default”.
  
- e) Now the Host’s actual speakers will be set to default. For peace of mind look for the green checkmark next to the speakers to confirm you have correctly set them as the default audio playback device.

## Tips for Bidirectional Audio

MobiKEY 5.2

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2) **General Tip:** *Ensure that “Mic 1 (MobiNET Audio)” is chosen as the default **recording** device in your Host asset.*

a) Right click on the sound icon on your Host asset’s system tray.



Figure 14. Host asset’s sound icon on system tray

b) In the right-click dialog box choose “Recording devices”. In the resulting window make sure to select the “Recording” tab.



Figure 15. Sound icon’s right-click dialog box

## **Tips for Bidirectional Audio**

### MobiKEY 5.2

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- c) The Sound Properties window will appear, showing the “Recording” tab. It may show that a recording device other than “Mic 1 (MobiNET Audio)” is the default recording device.
  
- d) Highlight “Mic 1 (MobiNET Audio)” and then click on “Set Default”.
  
- e) Now “Mic 1 (MobiNET Audio)” will be set as the default recording device on the Host asset. For peace of mind look for the green checkmark next to “Mic 1 (MobiNET Audio)” to confirm you have correctly set it as the default recording device.

## Tips for Bidirectional Audio

### MobiKEY 5.2

---

- 3) **Problem:** *I cannot hear sound during a MobiKEY data session.*
  - a) Refer to the section “**Enabling Bidirectional Audio in a Data Session**” on Page 4 of this document and ensure you have filled in the “Capture speakers” checkbox chosen a sound quality, and clicked OK.
  - b) Make sure that you have a speaker device attached to the Host asset. This can be external speakers or a headset, or on-board speakers embedded directly on the Host.
  - c) Refer to the section “**General Tip: Ensure that Mic 1 (MobiNET Audio) is not chosen as the default *audio playback* device in your Host asset**” on Page 9 of this document.
  - d) Outside of a MobiKEY data session make sure that the Remote asset’s speakers are not muted and are raised to an appropriate volume to allow you to hear the Host’s incoming audio.
  
- 4) **Problem:** *I cannot send audio to the Host; my microphone is not working.*
  - a) Refer to the section “**Enabling Bidirectional Audio in a Data Session**” and look for the tips for the “Microphone capture” button found on Page 6. Ensure you have filled in the “Capture microphone” checkbox chosen a sound quality and clicked OK.
  - b) Refer to the section “**General Tip: Ensure that Mic 1 (MobiNET Audio) is chosen as the default *recording* device in your Host asset**” on Page 11 of this document.
  - c) Outside of a MobiKEY data session make sure that the Remote asset’s input recording device is not muted and is raised to an appropriate volume to allow you to send audio to the Host asset.

## Tips for Bidirectional Audio

### MobiKEY 5.2

---

5) **Problem:** *Issues with Skype calls inside of a MobiKEY data session. I cannot hear anything, or my Skype call recipient cannot hear me speak.*

a) Refer to the sections “**Problem:** *I cannot hear sound during a MobiKEY data session*” and “**Problem:** *I cannot send audio to the Host; my microphone is not working*” on Page 13 of this document.

b) Within Skype, choose Call > Audio Settings.

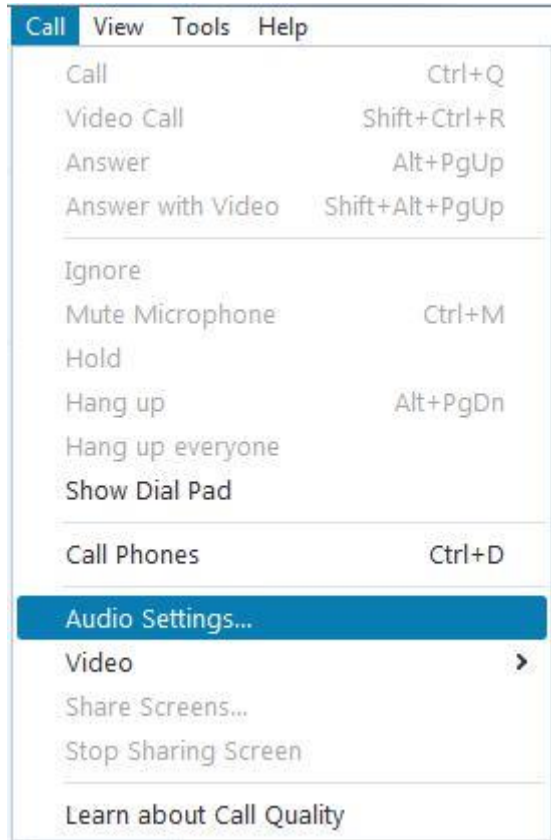


Figure 16. Skype Call > Audio Settings

## Tips for Bidirectional Audio

### MobiKEY 5.2

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- c) Then make sure that the Microphone drop down menu is set to “Mic 1 (MobiNET Audio)”. And make sure the Speakers drop down menu is set to your speakers the speakers should be set to something other than “Mic 1 (MobiNET audio)”.

Use this page to test the microphone level and the speakers level before trying to make a Skype call. To test the microphone, speak into the microphone, and you should see visual feedback on the screen indicating your microphone works. To test the speakers, click on the blue Play button and you will hear a short Skype chime, confirming audio is working.

- 6) **Problem:** *When I activate microphone capture or speakers capture, the session becomes too slow or freezes.*
  - a) Refer to the “**General Bandwidth Requirements**” section on Page 8 of this document. If the session becomes too slow or freezes, you should choose a lower audio sound quality, or troubleshoot your network to ensure you meet the minimum bandwidth requirements.