

## Definition of Optimized for Microsoft Office Communicator Audio Solutions

*Microsoft Optimized* is a set of prescribed product characteristics that define how a USB audio device will operate with Microsoft Office Communicator 2007. The same characteristics that optimize a device for Microsoft Office Communicator will also affect how the device functions with other applications. In most cases the result will be benign; in others it may result in error messages or other unexpected behavior.

When a USB device is connected to a computer it tells the computer about its design and capabilities through a process called *Enumeration*. The computer uses this information to set up appropriate controls for the device and also to tell applications about how to operate the device. The combination of enumerated product characteristics and the way an application operates the device establishes the behavior we associate with Microsoft Optimized devices.

*Microsoft Optimized* behavior reflects the combined effect of four elements

- Audio device type**
- Human interface device controls or HID**
- UC qualification string or UCQ**
- Application and operating system functionality**

The first three elements are defined through enumeration. The last element is defined by the design of the application and operating system.

### **Audio Device Type**

Microsoft Optimized audio devices are required to enumerate as telephony devices. Headsets optimized for Office Communicator enumerate their audio device type as a headset or type 402 device. Other common telephony device enumerations used by Office Communicator are handset (type 401) and echo cancelling speakerphone (type 405). Audio devices that are not Microsoft Optimized usually enumerate as a 201/301 or a speaker and microphone even if they are actually headsets, handsets or speakerphones.

### **Human Interface Device (HID)**

Some devices have controls such as call answer/end (hookswitch) and dialpad. During installation the device tells the computer what controls are present and the computer builds a control interface for the device. The control interface is called the Human Interface Device or HID. From the computer's perspective, the controls are completely separate from the audio part of the headset. Understanding this helps to explain why a device with controls can work for audio even if the controls do not function. From the computer's perspective they are separate devices.

### **UC Qualification (UCQ string)**

UCQ is a unique Microsoft criterion. Devices optimized for Office Communicator report their UCQ status and Office Communicator uses this information to establish device hierarchies and define which device will have control when multiple devices are present. The UCQ string first tells Office Communicator that the device is "Microsoft Optimized". UCQ also tells Office Communicator details about the devices that are not covered in enumeration and HID, such as whether it is a wireless device, the presence of Office Communicator's specific interfaces, and how to interact with multi-function devices.

### **Application and OS Functionality**

This is the final level that defines device behavior. Once the device is installed, Office Communicator and the operating system must work together to operate the device to manage calls. There are, however, many possible combinations of applications and operating systems. For example there are Office Communicator R1, Office Communicator R2, or even Office Communicator 2005. The operating system could be XP, Vista or Windows 7, and each can be different depending on the version of service pack installed. Even the brand of computer can all have an effect.

**Microsoft Office Communicator core behaviors, and the Interactive Flow Model**

Microsoft Office Communicator is designed to route call audio to the computer speakers and microphone when calls are answered with the computer controls or when no other audio device is connected. The design intent is to make sure you always have a way to communicate, even if no headset or other device is present. Office Communicator’s behavior of initiating calls to the speakerphone is integral to the Microsoft Interactive Flow Model (IFM). Products bearing the “Optimized for Microsoft Office Communicator” designation are required to follow the IFM by default. Some users may prefer to have all calls routed to the headset. This easy change is described in the Custom Call Flow section of this document.

**Microsoft Office Communicator: Default Call Flow**

Following are diagrams from the Microsoft Interactive Flow Model.

In Use Case 1 (Figure 2) the incoming call is answered by clicking the call notification on the computer screen. Office Communicator responds by routing the audio to the computer speakers (the default speakerphone). In Use Case 2 (Figure 3) the call is answered with the headset call control button and Office Communicator routes the audio to the headset.

In either Use Case, audio can be sent to the alternate endpoint by clicking on the speakerphone icon in the Office Communicator call window (Figure 1).

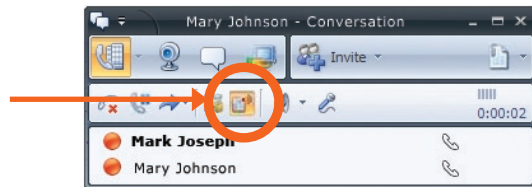


Figure 1

**Figure 2: Use Case 1**

Call is answered on Office Communicator and transferred to Device

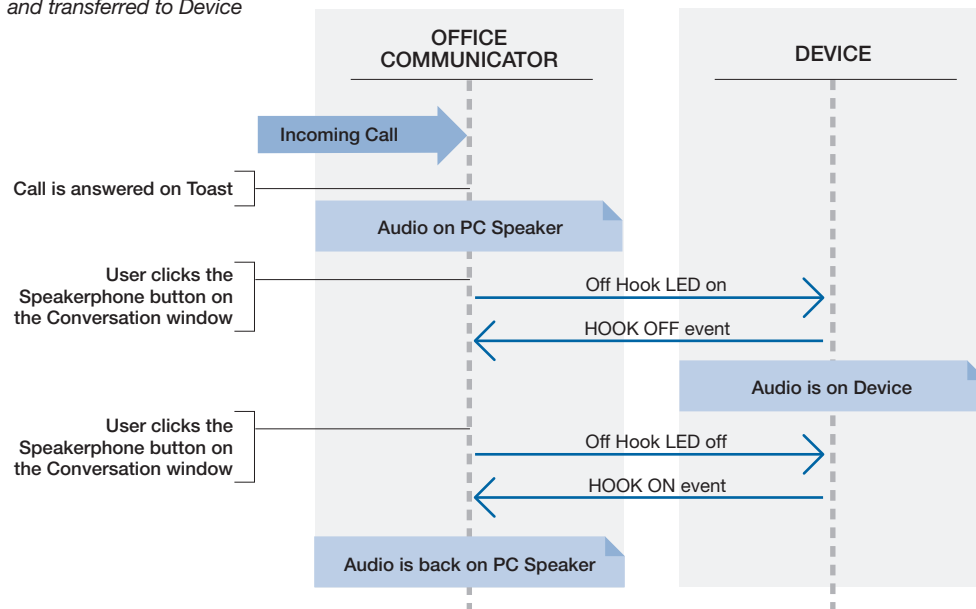
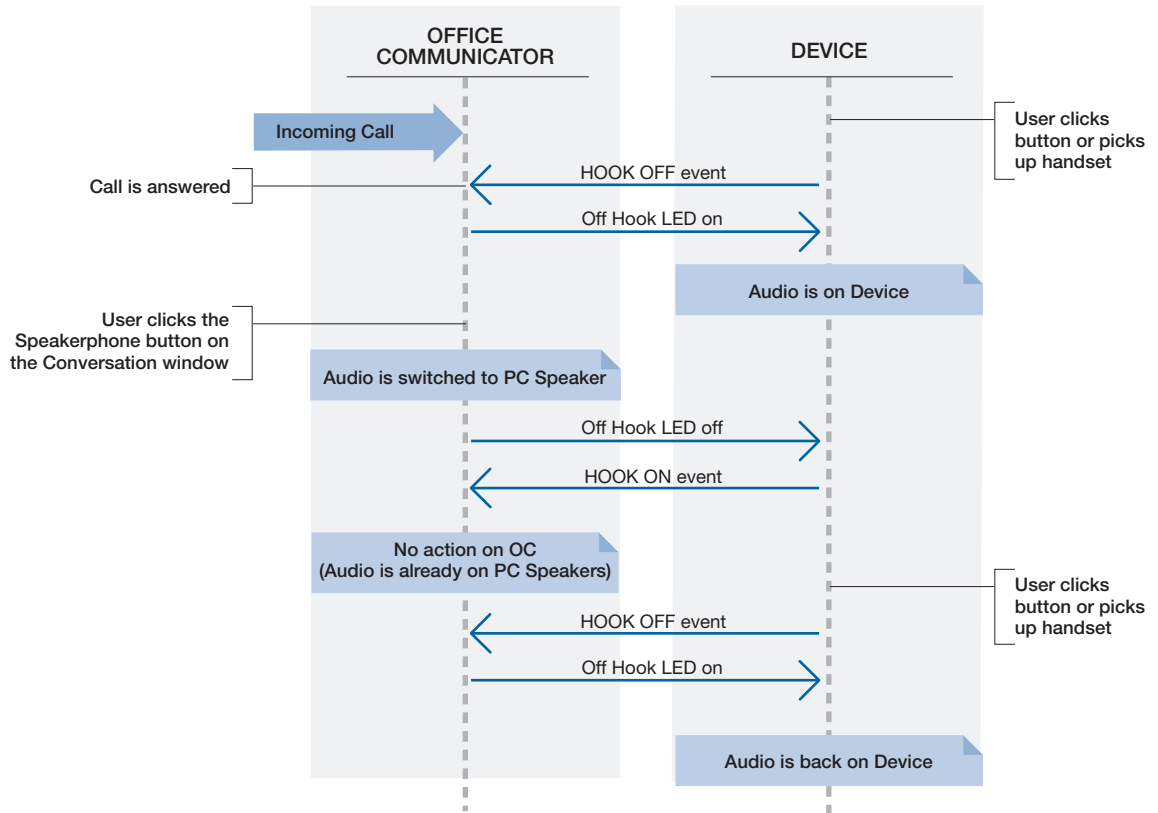


Figure 3: Use Case 2  
Call is answered on Device and transferred to Speakerphone



**Custom Call Flow: Disabling the speakerphone**

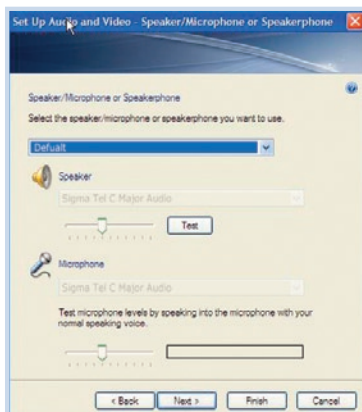
It is possible to configure Office Communicator and the host computer to not have the speakerphone option. When configured this way the speakerphone icon will not be displayed and call audio will always be routed to the headset (Figure 4).

**Configuring Office Communicator to always route call audio to the headset**

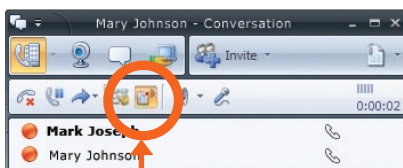
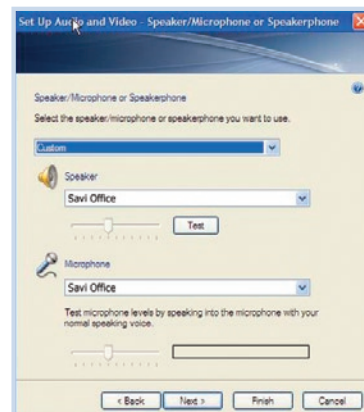
1. Connect a Microsoft Optimized headset to the computer. If this is the first time you are connecting the headset, wait for the installation process to complete. Restart the computer if directed to do so.
2. Click the drop down arrow icon in the upper left corner of the Office Communicator window
3. Select the **Tools** option
4. Select **Set Up Audio and Video...**
5. The first screen will be Setup for Handset or Headset. Verify that the headset is selected in the drop down menu. Click **Next**.
6. This screen is setup for Speakers/Microphone or Speakerphone. The drop down menu will indicate Default, and the Speaker and Microphone will indicate the computer soundcard or speakers & microphone.
7. Select **Custom** in the main drop down menu.
8. Now use the Speaker and Microphone menus to select the headset boxes
9. Click **Next**
10. The next window sets where the system sounds, including where the phone ringer will sound. This is not technically part of the speakerphone change but is an important part of the audio setup. The drop down menu selects whether the system sounds will be routed to the headset or the computer speakers. Most users prefer the computer speakers. After making your selection click **Finish**.  
*Note: USB configuration settings are unique for each USB port. Changing the settings as described here will only affect behavior when the headset is connected to that specific USB port. If you connect the headset to a different port you will need to make these changes again to set behavior for that USB port.*

Figure 4:

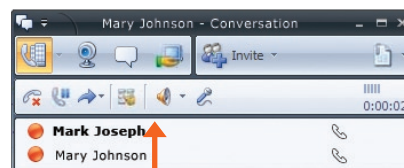
**Default Configuration**



**No Speakerphone Configuration**



Speakerphone Control



No Speakerphone Control