

# Unsupported SoM Update for Azure Percept DK's Camera and Audio SoMs

## Overview:

The Azure Percept DK's Audio and Camera SoM require a firmware update to continue to function past the retirement date of March 30, 2023. If you wish to continue to use your SoM(s) past the retirement date, please apply the below unsupported fix as soon as possible. The fix will be available from now until the retirement date.

After applying the unsupported fix, the container on the DK for the Audio Accessory SoM and the Camera SoM will also need to be updated. Steps to do so are provided after the unsupported fix guidance as the containers will need to be updated after the SoM(s).

## Note: Attestation Removal:

Please be aware, that this firmware update also removes attestation from the Camera and Audio SoMs. Attestation was a security feature that ensured that the Percept DK was connecting to Camera SoM and Audio Accessory SoM. Without this feature, this attestation no longer takes place after the firmware update.

## Prerequisites:

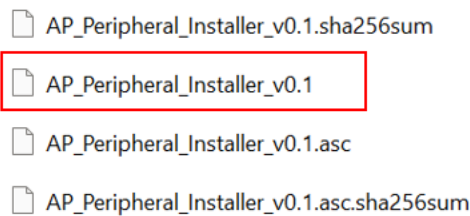
1. Azure Percept DK
2. Either or both:
  - a. Azure Percept DK's Camera SoM (Also referred to as "Vision" and "Eye")
  - b. Azure Percept DK's Audio Accessory SoM (was sold separately) (Also referred to as "Ear")
3. Cables to connect SoM(s) to the Azure Percept DK
4. Power source for Azure Percept DK
5. Device used to: 1.) download the firmware update tool and unzip the tool, 2.) SSH/interact with the Azure Percept DK.
6. Internet connection to download the firmware update tool

## Step-by-Step Procedure:

1. **Ready SoMs for the Update:**
  - a. Connect the Camera SoM and/or the Audio Accessory SoM to the Azure Percept DK. Connect the Azure Percept DK to a power source.
    - i. **Note:** Only the SoM's kept connected to the Azure Percept DK now and during the following steps will be updated and have the unsupported SoM fix update applied.
2. **Download and Unzip the Update File for copying to the Azure Percept DK:**
  - a. For the device you will be copying the firmware update tool to the Azure Percept DK from. Connect the device to the internet and download the firmware update tool from

here "<https://download.microsoft.com/download/7/7/a/77a2f57a-0ede-48be-988c-11796f7948da/Azure Percept DK SoM Attestation Update Tool.zip>"

- b. Unzip the file and extract the update tool from the folder "input"
- c. Once downloaded and extracted, be sure to remember the location of the firmware update tool on your device and its filename.
  - i. Ex:
    - Filename Zipped =  
<https://download.microsoft.com/download/7/7/a/77a2f57a-0ede-48be-988c-11796f7948da/Azure Percept DK SoM Attestation Update Tool.zip>
    - Filename Unzipped = AP\_Peripheral\_Installer\_v0.1
      - a. Note: Inside the folder "input" there are 4 files in the folder, the firmware update tool is named "AP\_Peripheral\_Installer\_0.1" and shown below. This is the tool that needs to be extracted.



- b.
        - d. (Optional – Alternative File Preparation) It is also an option to prepare the update as a U-Disk before copying the file to the PE-101. The guidance below roughly outlines how to do this method, however, that is an alternative method from the method covered in this guide.
          - i. Prepare a U-disk, the firmware update tool exists in its /test folder. Connect the U-disk to PE101, check if the USB disk is mounted, if not, mount it by manual.
          - ii. Commands:
            - lsblk
            - mkdir /mnt/usb
            - mount /dev/sda4 mnt/usb
            - lsblk

### 3. Connect to Azure Percept DK:

- a. Power on the Azure Percept DK and connect to it via SSH from your device.
  - i. Via SSH, you will need to locate the IP address of the Azure Percept DK and make note of this. This will be referred to in this guide as <ip address of Azure Percept DK>.
  - ii. Instructions on connecting via SSH are here: <https://learn.microsoft.com/en-us/azure/azure-percept/how-to-ssh-into-percept-dk>
  - iii. Alternatively, there are other methods to connect with Azure Percept DK listed on the Microsoft Learn site. For the purposes of this guide, SSH will be the primary method used.
    - UART for example is a method that can be done offline (<https://learn.microsoft.com/en-us/azure/azure-percept/how-to-connect-to-percept-dk-over-serial>)

#### 4. Confirm Firmware Version:

- a. From your device used for interacting with the Azure Percept DK, provide the following input to the Azure Percept DK. Please ensure that the SoMs you are checking are connected to the Azure Percept DK.

- i. To check the Audio Accessory firmware version “lsusb -d 045e:0673 -v”
- ii. To check the Camera SoM firmware version “lsusb -d 045e:066f -v”

- The output should look like the below for each SoM, please confirm that the “bcdDevice” section has the version number “1.00” for each SoM. If the version shows “3.00” as shown in the below image, the firmware fix has already been supplied to that particular SoM. If you attempt to follow the steps below, you will get a “Failure” message as the update has already been applied.

```
Bus 001 Device 042: ID 045e:0673 Microsoft Corp.
Couldn't open device, some information will be missing
Device Descriptor:
  bLength                18
  bDescriptorType        1
  bcdUSB                  2.01
  bDeviceClass            2 Communications
  bDeviceSubClass        2 Abstract (modem)
  bDeviceProtocol         0
  bMaxPacketSize0        64
  idVendor                0x045e Microsoft Corp.
  idProduct              0x0673
  bcdDevice               3.00
  iManufacturer          1
  iProduct               2
  iSerial                3
  bNumConfigurations     1
```

- **Note:** If either SoM shows version “0.08” then you are using Private Preview hardware that is not supported by this firmware update and tool.

#### 5. Via SSH - Copy Firmware Update tool file to the Azure Percept DK:

- a. Locate the IP address of the Azure Percept DK, this is used below and referenced as <ip address of the Azure Percept DK>
- b. Via SSH from your device used for interacting with the Azure Percept DK, copy the Firmware Update Tool file to the Azure Percept DK at the location “scp -r ..\test user@<ip address of Azure Percept DK>:/home”.

#### 6. Via SSH - Apply Firmware Update to the SoM(s):

- a. **Apply firmware update to BOTH the Camera SoM and Audio Accessory SoM:**

- i. Connect both the Camera SoM and Audio Accessory SoM to the Azure Percept DK.
- ii. Ensure Power is on.
- iii. Navigate to /home folder

- Ex: cd /home

- iv. Run the update tool via the following SSH command “sudo ./AP\_Peripheral\_Installer\_v0.1”

- The update will run, you will see the output “Complete” when the update is complete.

- v. After, via SSH check the firmware version of both devices:

- To check the Audio Accessory firmware version “lsusb -d 045e:0673 -v”
- To check the Camera SoM firmware version “lsusb -d 045e:066f -v”
- The output should look like the below for each SoM, please confirm that the “bcdDevice” section has the version number “3.00” for each SoM. If

the version shows “1.00” then the firmware fix was not successful. Please reattempt the steps above and try again.

```
Bus 001 Device 042: ID 045e:0673 Microsoft Corp.
Couldn't open device, some information will be missing
Device Descriptor:
  bLength                18
  bDescriptorType         1
  bcdUSB                  2.01
  bDeviceClass            2 Communications
  bDeviceSubClass        2 Abstract (modem)
  bDeviceProtocol         0
  bMaxPacketSize0        64
  idVendor                0x045e Microsoft Corp.
  idProduct              0x0673
  bcdDevice              3.00
  iManufacturer          1
  iProduct               2
  iSerial                3
  bNumConfigurations     1
```

- **Note:** If either SoM shows version “0.08” then you are using Private Preview hardware this is not compatible with this firmware update and tool.

**b. Apply firmware update to ONLY the Audio Accessory SoM:**

- Connect ONLY the Audio Accessory SoM to the Azure Percept DK.
- Ensure Power is on.
- Navigate to /home folder
  - Ex: cd /home
- Run the update tool via the following SSH command  
“sudo ./AP\_Peripheral\_Installer\_v0.1”
  - The update will run, you will see the output “Complete” when the update is complete.
- After, via SSH check the firmware version of the Audio Accessory:
  - To check the Audio Accessory firmware version “lsusb -d 045e:0673 -v”
  - The output should look like the below for the Audio Accessory, please confirm that the “bcdDevice” section has the version number “3.00”. If the version shows “1.00” then the firmware fix was not successful. Please reattempt the steps above and try again.

```
Bus 001 Device 042: ID 045e:0673 Microsoft Corp.
Couldn't open device, some information will be missing
Device Descriptor:
  bLength                18
  bDescriptorType         1
  bcdUSB                  2.01
  bDeviceClass            2 Communications
  bDeviceSubClass        2 Abstract (modem)
  bDeviceProtocol         0
  bMaxPacketSize0        64
  idVendor                0x045e Microsoft Corp.
  idProduct              0x0673
  bcdDevice              3.00
  iManufacturer          1
  iProduct               2
  iSerial                3
  bNumConfigurations     1
```

- **Note:** If the SoM shows version “0.08” then you are using Private Preview hardware that is not supported by this firmware update and tool.

**c. Apply firmware update to ONLY the Camera SoM:**

- Connect ONLY the Camera SoM to the Azure Percept DK.
- Ensure Power is on
- Navigate to /home folder
  - Ex: cd /home

- iv. Run the update tool via the following SSH command  
`“sudo ./AP_Peripheral_Installer_v0.1”`
  - The update will run, you will see the output “Complete” when the update is complete.
- v. After, via SSH check the firmware version of the Camera SoM:
  - To check the Camera SoM firmware version “lsusb -d 045e:066f -v”
  - The output should look like the below for the Camera SoM, please confirm that the “bcdDevice” section has the version number “3.00”. If the version shows “1.00” then the firmware fix was not successful. Please reattempt the steps above and try again.

```

Bus 001 Device 042: ID 045e:0673 Microsoft Corp.
Couldn't open device, some information will be missing
Device Descriptor:
  bLength                18
  bDescriptorType        1
  bcdUSB                  2.01
  bDeviceClass            2 Communications
  bDeviceSubClass        2 Abstract (modem)
  bDeviceProtocol         0
  bMaxPacketSize0        64
  idVendor                0x045e Microsoft Corp.
  idProduct              0x0673
  bcdDevice               3.00
  iManufacturer          1
  iProduct               2
  iSerial                3
  bNumConfigurations     1

```

- **Note:** If the SoM shows version “0.08” then you are using Private Preview hardware that is not supported by this firmware update and tool.

## Updating the Azure Percept DK’s Container for the Audio Accessory SoM:

- The container is located in Microsoft Container Registry here:  
**[mcr.microsoft.com/azureedge/devices/azureearspeechclientmodule:1.0.4-noauth](https://mcr.microsoft.com/azureedge/devices/azureearspeechclientmodule:1.0.4-noauth)**
- To update the container on the Azure Percept DK, please follow the steps here:  
<https://learn.microsoft.com/en-us/azure/iot-edge/how-to-deploy-modules-portal?view=iotedge-1.4>
  - The update is applied to a container on IoT Edge on the Azure Percept DK
  - The update method above is via the Azure Portal
    - An alternative method is to update the container via VS Code. Directions on how to do so start at Step 3 here: <https://learn.microsoft.com/en-us/azure/azure-percept/create-people-counting-solution-with-azure-percept-devkit-vision>

## Updating the Azure Percept DK’s Container for the Vision Accessory SoM:

- The container is located in Microsoft Container Registry here:  
**[mcr.microsoft.com/azureedge/devices/azureeyemodule:2301-1-noauth](https://mcr.microsoft.com/azureedge/devices/azureeyemodule:2301-1-noauth)**
- To update the container on the Azure Percept DK, please follow the steps here:  
<https://learn.microsoft.com/en-us/azure/iot-edge/how-to-deploy-modules-portal?view=iotedge-1.4>
  - The update is applied to a container on IoT Edge on the Azure Percept DK
  - The update method above is via the Azure Portal
    - An alternative method is to update the container via VS Code. Directions on how to do so start at Step 3 here: <https://learn.microsoft.com/en-us/azure/azure-percept/create-people-counting-solution-with-azure-percept-devkit-vision>

[us/azure/azure-percept/create-people-counting-solution-with-azure-percept-devkit-vision](#)