



## TECHNICAL WHITE PAPER

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# HP Z VR AND OMEN X BACKPACK CONNECTIVITY WITH HTC VIVE PRO

## 1. INTRODUCTION

This document will provide two options for connecting the HP Z VR Backpack and/or OMEN X Backpacks to the HTC VIVE Pro while managing the headset's cables: Cables Tucked in Harness and 3D Printed Cable Rack.



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## 2. CONFIGURATION 1: CABLES TUCKED IN HARNESS

### a. Required components for set-up:

- 5x hook and loop cable tie, width 1/2" (~12 mm), length=8" (~200 mm) (example strap can be found [here](#))
- 3-in-1 cable (included with backpack)
- One of the following DisplayPort™ (DP) cabling options:
  - ~3 ft (1 m) mini DP to DP cable (included with HTC VIVE Pro) with DP to USBType-C™ adapter (must support 4K resolution, an example can be found [here](#)). Images below use this option
  - ~3 ft (1 m) mini DP to DP cable (included with the HTC VIVE Pro) with DP to mini DP adapter (must support 4K resolution, an example can be found [here](#))
  - ~3 ft (1 m) mini DP to mini DP cable (an example can be found [here](#))

### b. Set-up:



Image 1



Image 2

- Route the HTC VIVE Pro cable between the top of the PC plate and harness and wind it into an approximately 12 in diameter loop as shown by arrow in **Image 1**
- Leave 2 foot of cable between the headset and the top of the PC (for ease of documentation **Image 1** depicts less than 2 ft)
- Connect the following cables to the Link Box: HTC VIVE Pro cable, power and USB cable from the 3-in-1 cable (right angle connector side of cable), and the mini DP to DP cable as shown in **Image 2**
  - Note that the HDMI on the 3-in-1 cable cannot be used
- Connect the DP to USB Type-C™ adapter to the mini DP to DP cable as shown in **Image 2**
- Position the Link Box at 3 o'clock on the cable loop as shown by arrow in **Image 2**
  - The Link Box should have the certification label facing up so that the blue power button on the Link Box is toward the outside of the cable loop as shown in **Image 2**



Image 3



Image 4

- Using 3x cable ties, shown in **Image 3**, tie the cable loop directly above and below the Link Box and opposite the Link Box, as shown in **Image 4**
  - To reduce the amount that the cables extend out from the harness, press the sides of the cable loop together so that the loop remains in an oblong shape, as shown in **Image 4**
- Route the 3-in-1 cable and the DP cable with DP to USB Type-C™ adapter between the top of the PC plate and the harness as shown by arrow in **Image 4**



Image 5



Image 6



Image 7



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- Tuck cable loop between the PC plate and the harness as shown in **Image 5**
- Make sure the Link Box extends out the right side of the harness with the blue power button easily accessible as shown by arrow in **Image 6**
- Use 2x hook and loop cable ties, shown in **Image 3**, to tie the cable loop to the upper arms of the PC plate as shown by arrows in **Image 7**
- Plug the power, USB, and USB Type-C™ cables into the top ports of the PC as shown in **Image 7**
  - Note that the HDMI on the 3-in-1 cable cannot be used

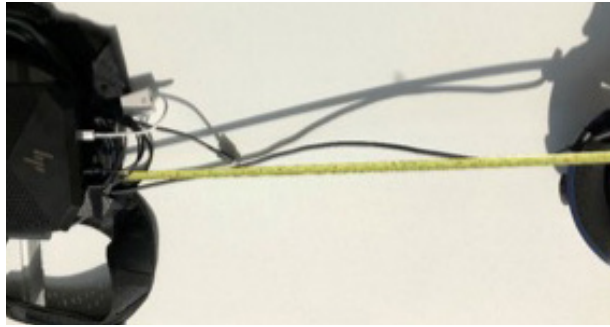


Image 8

- There should be approximately 2 ft (~60 cm) of cable between the top of the PC and the headset as shown in **Image 8**

#### c. Potential issues

- The connection between the Link Box and cables is not supported and cable connectors could come unplugged from the Link Box during use; the power cable has an especially low retention force
- The cable loop and Link Box may result in some discomfort to the user while wearing the backpack
- The Link Box is not secured and could rattle around and become damaged
- The cable loop could catch on an object or another user

## 3. CONFIGURATION 2: 3D PRINTED CABLE RACK

#### a. Required components for set-up:

- 3D print of: "BackPack\_CableRack.stl" on HP MJF 3D printer
  - This file can be obtained from your HP Sales or Channel Representative
- Hook and loop cable tie, width 1/2" (~12 mm), length=8" (~200 mm) (an example strap can be found [here](#))
- 3-in-1 cable (included with backpack)
- One of the following DisplayPort™ (DP) cabling options:
  - ~3 ft (1 m) mini DP to DP cable (included with the HTC VIVE Pro) with DP to USB Type-C™ adapter (must support 4K resolution, an example can be found [here](#)); refer to the images below that use this option
  - ~3 ft (1 m) mini DP to DP cable (included with the HTC VIVE Pro) with DP to mini DP adapter (must support 4K resolution, an example can be found [here](#))
  - ~3 ft (1 m) mini DP to mini DP cable (an example can be found [here](#))



Image 9



Image 10

#### b. Set-up:

- Insert hook and loop cable tie through slots in 3D printed cable rack as shown by arrow in **Image 9**
- Slide the cable rack up from the bottom of the PC until it snaps into place
- Check the left and right side to ensure that the snaps are securely in place on the recess of the PC as shown by arrows in **Image 10**



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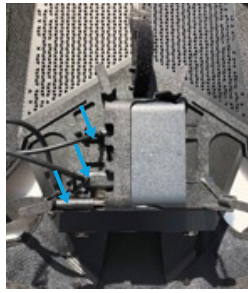


Image 11



Image 12

- Slide the Link Box partially into the slot on the cable rack and connect power and USB of the 3-in-1 cable (right angle connector side of cable) as shown by arrows in **Image 11**
  - Note: power and USB cannot be plugged in if the Link Box is fully inserted and locked in place
- Slot the HDMI connector into the recess on the cable rack as shown by arrow in **Image 11**
- Slide the Link Box, with cables connected, into slot until locked
  - Once the Link Box is locked in place, the power and USB cables cannot be disconnected
  - Plug the mini DP cable into the Link Box and wrap all cables clockwise, 1 ¼ wraps, around hooks as shown in **Image 12**



Image 13



Image 14

- Attach the DP to USB Type-C™ adapter to the mini DP to DP cable and plug all cables into the top ports of the backpack as shown in **Image 13**
  - Note that the HDMI on the 3-in-1 cable cannot be used
- Plug the HTC VIVE Pro cable into the Link Box and wrap the HTC VIVE Pro cable clockwise around cable rack hooks as shown in **Image 14**
  - Make sure that the HTC VIVE Pro has a gradual bend radius at the connector
  - Leave ~2.5 ft (~76 cm) of cable between the cable rack and the headset
- Fasten the cable tie to keep the cable bundle secure as shown by arrow in **Image 14**



Image 15

- If removing the Link Box from the cable rack is needed, press down on plastic tab and slide the Link Box out as shown in **Image 15**



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### c. Potential issues

- The HP MJF 3D printer prints in full strength nylon. If a different 3D printing technology is used to produce the cable rack parts, the parts may break
- The HDMI on 3-in-1 cable cannot be used (even with an HDMI to mini DP adapter)
- Adapters that do not support 4K resolution will not work
- When wrapping the HTC VIVE Pro cable leave a large bend radius at the connector end so the cable is not kinked and damaged

## 4. CONCLUSION

The ~13 ft (4 m) HTC VIVE Pro cable, along with the Link Box and standard cables, can be effectively managed to allow for use with the HP Z VR Backpack and OMEN X Backpacks.

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4AA7-3874ENW, October 2018