



# 412<sup>th</sup> Test Wing



*War-Winning Capabilities ... On Time, On Cost*

## Telemetry Software and System Documentation Made 'Easy'

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*Integrity - Service - Excellence*



# Overview



- The Problem
- New Solutions
- Steps Recorder
- Audio and Video Capture
- Audio and Video Quality
- Conclusion



# The Problem



- **Instrumentation and Telemetry systems use complex software for configuration and operation**
- **The software documentation often lags behind**
  - **Training can be costly**
- **No easy way for vendors to show customers how to do something remotely**
- **Large influx of new engineers and need for hands-on training while teleworking**
  - **I've had a ton of cases where I wished I could just record a how-to video**



# New Solutions



- **Podcasting and streaming rising in popularity over the years – even before COVID**
- **Decent quality audio and video capture can easily be done at low cost**
  - 1. Steps Recorder (Windows 10 Only)**
  - 2. Software-only Capture**
  - 3. External Video Capture**



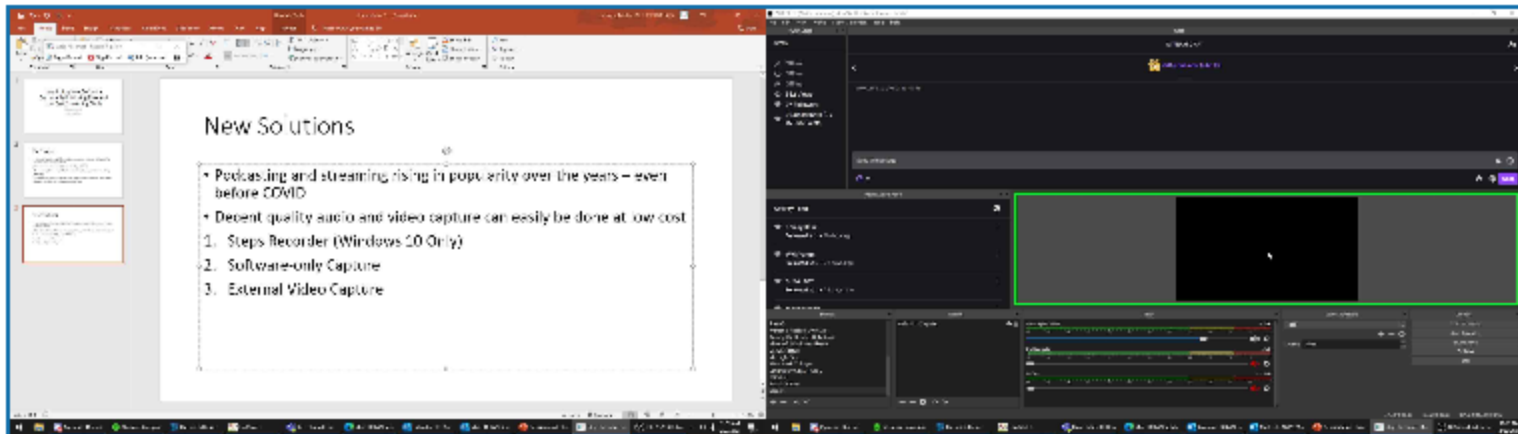
# Steps Recorder



- **Microsoft utility to capture mouse clicks and screenshots across multiple applications and monitors**
- **Easy to follow output**
- **Built into Windows and IA approved**

Next

**Step 1: (2/23/2021 11:53:16 AM)** User right click on "OBS 23.2.1 (64-bit, windows) - Profile: Untitled - Scenes: Untitled (window)" in "OBS 23.2.1 (64-bit, windows) - Profile: Untitled - Scenes: Untitled"





# Audio and Video Capture



- Record the software operation with voice narration
- Shows the user the exact steps with the ability to describe why or explain flow
- Can be easier to follow than written directions



# Video Demo





# Software-Only Capture



- **PC Software to capture and record video and audio from multiple sources**
- **Can capture a specific window or display**
- **Multiple Free/Open Source options**
- **Pros**
  - **Low Cost (just get a good microphone)**
  - **Easy to set up**
  - **One Computer Solution**
- **Cons**
  - **Capture software runs on same computer**
  - **Capture software could disrupt system under test**



# External Video Capture



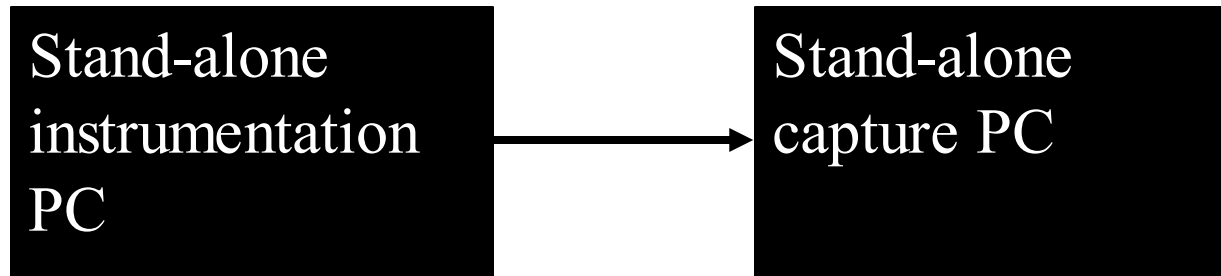
- **External hardware for display capture**
  - Typically HDMI
- **USB-C and PCIe options**
- **Typically under \$300**
- **Pros**
  - Can't interfere with system of interest
  - More options for stand alone configurations
- **Cons**
  - Harder to set up
  - Need a 2<sup>nd</sup> PC



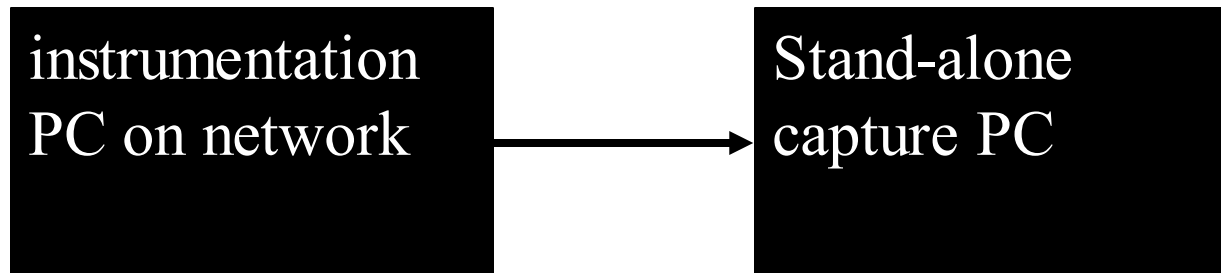
# External Configurations



- **Both systems are stand alone**



- **Capture system stand alone**

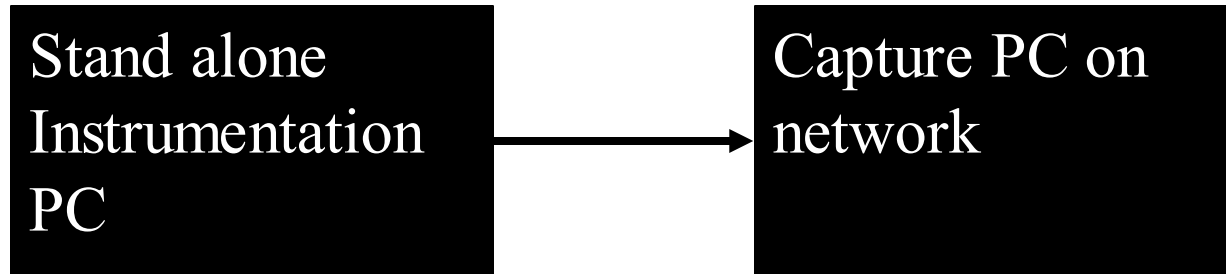




# External Configurations



- **Screen sharing for conference calls**





# Microphone Quality



- **Can you hear the difference?**
  - **\$15 work issued headset**
  - **\$100-\$200 range USB microphone**





# Audio Quality is Key



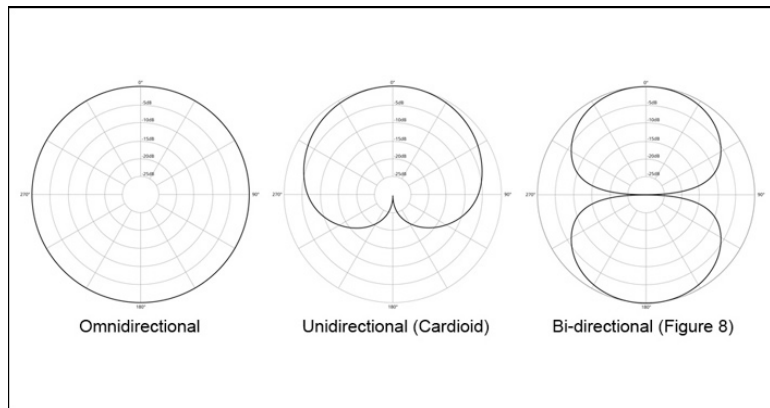
- **Audio – easy to do bad, hard to master**
- **Not difficult to get decent quality**
- **Get a good microphone setup**
- **Get audio filters in place**
  - **Compressor**
  - **Expander / Noise Gate**
  - **Noise Suppression**



# Microphone Setup



- **USB – look for \$100-\$200 price range**
- **Unidirectional Cardioid Pattern**
- **Boom Stand**
- **Proper Positioning**
- **Quiet environment to record in**





# Video



- **Lighting is important – get a dedicated umbrella or ring light for the subject**
- **Video of presenter – Pros/Cons?**
  - **Blocks parts of the interface**
  - **Distracting**
  - **Video may make audience feel more connected to instructor**
  - **Streamers are entertainers, our goal is to document**



# Conclusion



- **New tools enable better documentation**
- **Accommodates generational change of learning style**
  - “Digital Natives”
- **Easy to use**
  - 13 year old kids stream
- **Small investments = large quality increase**



# References



- ADVANCED Stream Mic Settings | Streamlabs OBS Microphone Filters [2021] - <https://www.youtube.com/watch?v=agKyVlvcS-g>